AMATEUR RADIO

VOL. 53, No. 8, AUGUST 1985

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

WIA's 75th Anniversary Fox Hunting Championship — 25th & 26th October 1985

37th Annual Remembrance Day Contest — 17th & 18th August 1985

NEW

TRANSCEIVER REVIEWS

The August issue of Electronics Today will see the launch of a new series of transceiver reviews. ETI will do its own tests and publish the measured specs.

ALSO IN THE AUGUST ISSUE:

★ How good is your transceiver?
★ Getting started on the higher frequencies
★ Some shortwave stations being forced to use allocated frequencies
★ Aussat manoeuvres ahead of launch

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On 25-26th October 1985, the first National Fox Hunting Championship will be held at the Wagga Convention, in conjunction with the WIA's 75th Anniversary. The winning team will hold the trophy, featured on the cover, for twelve months. Inset: The late William McInnes Moore VK2HZ. Bill, a life member of the Institute, saw service in the RAAF as a wireless operator. See page 29 for a tribute to Bill.

AMATEUR RADIO

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As a special feature for this month's RD contest, Max VK3ZS has written an informative article of how this contest began (see centre pages). Max lists the radio amateurs whose memory is perpetuated by this contest.

Another type of contest begins this year — the first National Fox Hunting Championship. This inaugural Hunt is being conducted during the Wagga Convention, 25th and 26th October, and is part of the WIA's Seventy-Fifth Anniversary. The winning team will hold the magnificent trophy featured on the front cover. Full details appear on page 9.

This month the overall winner of the Agfa photographic competition for the past twelve months, is announced, p. 29.

VHF/UHF enthusiasts will be interested in the history of bridging the VK6-VK5 and VK6-VK3 paths on 144MHz and other bands, between 1951 to January this year. Walter VK6KZ has spent many hours studying the logs of the late Rolo Everingham VK6BO, to glean much of this information.

DEADLINE

All copy for October 1985 AR (including regular copy of Hamads and columns) must arrive at PO Box 300, Caulfield South, Vic. 3162 at the latest by midday 21st August 1985.

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Material should be sent direct to **PO Box 300, Caulfield South, Vic 3162**, by the **25th of the second month preceding publication. Note: Some months are a few days earlier due to the way the days fall. Phone: (03) 528 5962.**

Hamads should be sent direct to same address.

Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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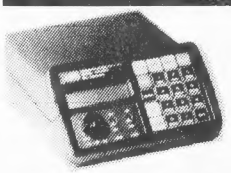

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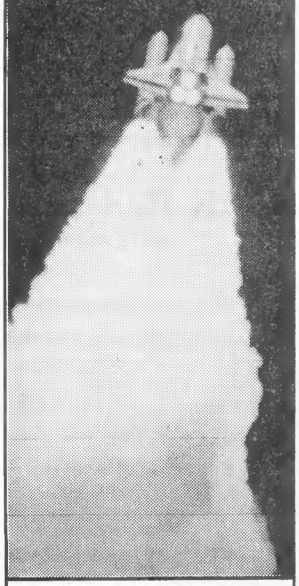

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RBA $55 + $5 p&p

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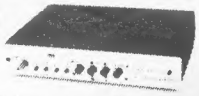

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Debeglass	2.5	3.9	430	3.6	6.3	560
Steel wire	2.5	5.6	370	3.15	9.3	530

DB-4 (4mm) $0.51m DB-5 (5mm) $0.71m
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EDITOR'S COMMENT

LOOSE ENDS

From time to time there are occasions when your Editor can actually spare an hour or so for a little listening on the bands, maybe even making a contact or two. It should be compulsory for all of us, on the bridge of the good ship "Amateur Radio", to make this effort to keep in touch. So for this month of August 1985, the occasion of the 38th Remembrance Day Contest, I thought I might mention a few unrelated items heard on the air, or which come to mind.

The first is AR's print size, which we have to admit has been a little on the small side for the last year or so. There is a continuing necessity to put a great deal of material into a limited amount of space. But improvements are already being made by our skilled typesetters. It is possible with computerised equipment to fit larger type into the same space by cutting down on spacings between letters and words etc, and this condensing process is well under way. But if you really want larger type and a bigger magazine there is one certain way to help. Enlist a new member (or two, or more?). Our budget is set by our subscription income, and the more there is the more efficiently we can function. This will become even clearer when our promised article on the production of the magazine appears in print soon.

Finally, if there are some of you in North Queensland or the Top End who would like an opportunity to "earbash" the Editor, your chance is coming. My XYL and I are planning a flying trip up north during the August/September school holidays. We look forward to hearing you on 2m FM, with perhaps the occasional "eyeball".

Bill Rice VK3ABP
Editor

AR

WIA Seventy Fifth Anniversary

Letter of congratulations from overseas societies, presidents, etc. are arriving daily, listed here are those received to date:

NZART
IARU Region 2
IARU Headquarters
Radioklub de Deutshen Demokrtischen Republik
Radio Society of Bermuda
Grenada Amateur Radio Club
Israel Amateur Radio Club
Chinese Radio Sports Association
IARU Region 3
OVSV Austria
IARU President
RSGB
Amateur Radio Society Bahrain
Canadian Radio Relay League
South African Radio League
CRAS of El Salvador
Radio Club of Chile
Radio Club Venezuela

75TH ANNIVERSARY DINNER

Arrangements for this important function are well in hand, a registration form is inserted in this issue to facilitate booking arrangements. It looks as if the 75th Anniversary dinner at the Southern Cross Hotel on 9th November will truly be a night to remember in the long history of our Institute. At this time the official guest list is growing, to date acceptances have been received from:

The Honorable Michael Duffy, Minister of Communcations
Richard Butler, Secretary General of the ITU
Richard Baldwin W1RU, President of the IARU
Carl Smith W0BWJ, Vice President of the IARU Region 2
Pedreo Seiderman YV5BPG, President of the IARU Region 2
David Rankin VK3QV, Chairman of the IARU Region 3
Masayoshi Fujioka JM1UXU, Secretary of IARU Region 3
John Alloway G3FKM, Secretary of IARU Region 1

MEMBERSHIP

In the January issue of Amateur Radio it was announced that each 75th new member during 1985 would receive a quartz multi function clock for their shack. Listed below are the recipients to date of these clocks:

C W Purvis VK3DEN
A R Clark VK3CAC
D H James L20348
D Perno VK4BDP
K J Chipper VK6ZEB
J C Kemp L50129

As the year progresses more names will be added to this list, hopefully many more.

Next month we will be listing of proposers of new members, the computer will be selecting a separate listing of proposers of members and gifts will be despatched. Keep up the good work!

BOOK PACKS, THE 75TH ANNIVERSARY and THE YEAR OF YOUTH

The June issue on this item has generated a great deal of interest and mail to the Federal Office. In order to satisfy many of the questions being asked, listed below are the contents of each book pack. (Items may change subject to availability).

$15 pack. P&P Paid.
Into Electronics (NSW Education Service)
Novice Electronics
100 Basic Projects
Guide to Amateur Radio (RSGB)
WIA Book 1
WIA Call Book
Radio Amateurs World Atlas

$30 pack. P&P Paid.
The following plus the $15 pack:
Basic Training Manual (NZART)
Hints and Kinks (ARRL)
Weekend Projects (ARRL)

$50 pack. P&P Paid.
The following plus the $30 pack:
ARRL Handbook (ARRL)
Maidenhead Locator World Atlas

Each pack will contain information on amateur radio in the form of letters, leaflets and posters.

When applying for a book pack please ensure that you enclose, in your request to the Federal Secretary, details of the Club/Group making the presentation and the recipients. It must be stressed that the value of these packs bears no resemblance to retail prices.

POSTER COMPETITION

The 7th Anniversary sub-committee has awarded the prize for the poster competition to V Marsden VK2EVM. Hearty congratulations.

PRE STAMPED ENVELOPE

The success of the envelope released by Australia Post to celebrate the 75th Anniversary was extremely good. The displays put on by Divisions and clubs in Post Offices was not only appreciated by the general public

but by Australia Post also. The envelope has also generated considerable interest overseas, mail from amateur radio collectors has been heavy and news to date is that the envelope will be featured in QST as well as Region 3 news. It has been indicated to the Executive that this envelope has been one of the most popular ever issued!

75TH AWARD

This Federal award, being run by the Victorian Division, is still creating considerable interest both at home and overseas. Our awards manager for this Anniversary event, Jim Linton VK3PC, has advised the Executive that, to date, some 200 of the awards have been issued. To remind you, your membership number is printed each month on the label of your copy of AR. If you have not qualified yet there is still plenty of time as this award runs until the end of the year, the certificate itself is well worth the effort to obtain. The rules for the award appeared in the March issue of AR, page 52.

VK75A

The QSL manager for this special Federal call sign, Des Clark VK3DES, now has supplies of the special QSL card and is busy catching up on the 6000 contacts to date. If you have not been lucky enough yet to have had a QSO, there is still time. During August the VK4 Division will be operating the special call sign, followed in September by the VK1 Division.

WORLD AMATEUR RADIO DAY-18 APRIL 1985

As a result of the Institutes listening stations on the 10, 18 and 24 MHz bands, to increase the use of these bands, the following stations have been selected from the many "heard" during this Special Day:
VK4NL, VK2DVU, VK3AMB, VK1ZU, VK7CH, VK6WT, VK5GZ, VK2AJO, VK3ZM, VK4NR.

These stations will receive, in the very future, 75th Anniversary gift packs.

CW CONTEST RESULT

The results were published in the July issue of AR. The winner of this event P Alexander VK2PA was presented with the Presidents Cup during the Oxley Region Field Day at Port Macquarie over the June long weekend. The presentation of the special 75th Anniversary prize for this inaugural event, the William Willis specially mounted and engraved Morse key, will take place at a later date this year.

All entrants to this special CW event this year have received their certificates.

AR

RADIO AMATEURS WIN MINISTER'S TRIBUTE ON 75th ANNIVERSARY

The Minister for Communications, Mr Michael Duffy, recently paid tribute to the work of the Wireless Institute of Australia which this year celebrates its 75th anniversary.

On 22nd May 1985 Australia Post issued a special stamped envelope marking the occasion.

"Amateur radio is usually looked as a leisure-time hobby," Mr Duffy said, *"but in times of war and emergencies such as bushfires, the operators have proved truly professional in the help they have been able to give."*

The WIA was formed in 1910 and is the first and oldest radio society in the world. Its membership includes operators of all ages, both sexes, the handicapped and the disabled.

Mr Duffy said 1985 was of special significance in the history of Australian communications because of the imminent launch of the AUSSAT communications satellites.

"It is not generally known that fifteen years ago a team of radio amateurs in Melbourne built a satellite and had it launched in the US," Mr Duffy said.

The satellite was named OSCAR 5 (OSCAR is the acronym for Orbiting Satellite Carrying Amateur Radio) and although it operated for only forty-four days it demonstrated that radio amateurs had the expertise and capability to activate a spacecraft radio beacon by transmitting command signals from earth.

"These days ordinary citizens around the world use amateur radio equipment and satellites to communicate with each other," the Minister said.

Mr Duffy said that in its administrative/regulatory roles his Department had a close relationship with the WIA which represents some 16,000 amateur radio operators.

"The two organisations sometimes disagree on matters concerning use of the radio frequency spectrum, but the Department values its links with the WIA and the advice it puts forward."

Press Release No 37/85 — 23rd May 1985 from Minister for Communications.

AR

RECIPIENTS — WIA 75 AWARD

NAME AND CALL SIGN	*CERTIFICATE NO.*
Graeme Harris VK3BGH	1
Kim Wilson VK3CYL	2
Gwen Tilson VK3DYL	3
Brian A O'Neill VK2AKU	4
Charles H Thorpe L40018	5
Arthur J Harris VK2KFV	6
R E Richards VK7NAI	7
David V Furman VI3DVF	8
John E C Heaver VK3VNQ	9
Mary Ann Crider WA3HUP	10
Ruthanna Pearson WB3CQN	11
Keith Russell G4RZQ	12
Steve Ireland VK5AOZ	13
John K O'Brien VK1NCO	14
A T Menham VK4VAT	15
Jim Thornton VK2VRT	16
L A James VK2EDQ	17
Colin Davidson VK2JCO	18
Brian H Lackie VK2DLM	19
G A Devonshire VK4NRG	20
David Jewell VK0DJ	21
Bill Martin VK2COP	22
Steve Pierrehumbert VK3XSP	23
E K Williams VK4VDD	24
Michael Wilson VK3VMW	25
Frank James VK3CFJ	26
Keith F Turk VK2PKT	27
Ivan A Gee ZL1AQO	28
Ben Bodnaruk VK2DLB	29
S G Honey VK7NGH	30
D R Hurley VK3BCD	31
Bobbie O'Hare VK2PXS	32
D G F Meerstadt VK2RM	33
George Cranby VK3GI	34
V E Hearne VK3PXC	35
Barry J Funk VK2DYV	36
Gerhard A Koziol VK3KJI	37
M R Raabe VK4KWO	38
Ewen Templeton VK3BMV	39
B P Dilworth VK7BD	40
Dennis Tidy VK2DET	41
Ron Millingen VK2PZW	42
Val Rickaby VK4VR	43
Ken Gott VK3AJU	44
Paul McFadzean SWL	45
Peter Kenyon L30O37	46
Don Randall VK2PYD	47
Steve Pall VK2PS	48
Eric Shaw P29KES	49
Ronald Crosby VK2BCH	50
Harry Ellson VK3DRO	51
A F Cruikshank VK4MAX	52
Leonard J Brines VK2PLN	53
Margaret Mann VK3CWA	54
Derek Reed VK2ERJ	55
Dion M Hucker VK3VIN	56
M C Brockbank VK2EXB	57
Des Hancox VK2AGA	58
Dennis Middleton VK2NAN	59
Richard Moore VK2NQN	60
David B Beecham VK2CDB	61
R C Marschke VK1PP	62
John C Moulder VK4YX	63
F H Macklin VK1ZL	64
D M Harrison VK3NDH	65
B A Humphry ZL1BWB	66
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THANKS

I wish to convey my appreciation and thanks for the prizes which arrived recently in connection with the 75th Anniversary subscription renewals, and congratulate the Institute on the activities undertaken to celebrate the Seventy Fifth Anniversary.

73.

Jim Oliver VK7JO

Re my receipt of the gift package to be followed with my receiving the clock. These moments in amateur radio I shall not forget. Very greatly appreciated and sincere thanks to those concerned.

Best of 73,

Yours faithfully,

H R Hodgson VK5AP

Many thanks for your advice re my membership of the Institute.

I also wish to convey my thanks to the Institute for the presentation clock which came as a complete surprise, and is very much appreciated.

Yours sincerely,

C W Purvis VK3DEN

A note of thanks and appreciation for your letter of the 14th June 1985 and the quartz clock received in the mail.

Just how much appreciation may, perhaps, be judged if I tell you a little about myself: having been "forced" into a somewhat early retirement by the widespread unemployment in the building industry, I took the opportunity, of extra leisure time, to fulfill a lifelong ambition and become an amateur and whilst I have acquired some "necessary" items of equipment the budget certainly does not run to such items as clocks (to date my shack clock consisted of an old resurrected digital watch with a smashed case!).

However, I have received a great deal of enjoyment from my relatively short sojourn in the amateur ranks and as a member of the WIA.

To receive a gift in addition to the pleasure of membership makes me feel very fortunate indeed.

So thanks again, and let me just add that here is a member who is very appreciative of the time and effort expended by the Executive, Officers etc, of the WIA, on members' behalf

Yours sincerely,

Dmitri Perno VK4BDP

AR

AUGUST 1985

SUN	MON	TUE	WED	THU	FRI	SAT
				1 National Day — Switzerland	2 Independence Day — Macedonia	3 Novice Revision — VK3
4 1985 World Police/Fire Games-W6YL begins Novice Revision — VK3 Sun City to Surf — VK2	5 Bank Holiday — VK2 Picnic Day — VK8	6	7	8	9	10 AOCP Revision — VK3 European CW Contest
11 1985 World Police/Fire Games — W6YL ceases AOCP Revision — VK3 European CW Contest	12	13	14 Brisbane Show Day	15 Independence Day — India	16	Ballarat ARG Field W/end KCJ CW Contest National Day — Indonesia RD Contest SARTG RTTY Contest
18 Ballarat ARG Field W/end KCJ CW Contest RD Contest SARTG RTTY Contest	19	20 Anniv of 1st King crowed in Hungary DOC Examinations St Stevens Day	21 Deadline for copy for AR	22	23 School Break up — VK1 School Break up — VK2 School Break up — VK3 School Break up — VK6	24 All Asian CW Contest GARTG RTTY Contest National Day — Malaysia Townsville ARC Convention VK Income Tax Returns Due VK3 RTTY Art Competition closes
25 All Asian CW Contest GARTG RTTY Contest	26 AOCP Theory — VK3 General Meeting — VK1	27 General Meeting — VK5 Novice Theory & CW Classes — VK3	28	29	30 School Break up — VK5 School Break up — VK7 Townsville ARC Convention	

AURORA SCATTER — ANTARCTICA

Don Richards VK2BXM
The Ski's Inn, Sackville Road, Ebenezer, NSW. 2756

Between November 1984 and March 1985, the Research Vessel, the Dick Smith Explorer, which is owned by the Oceanic Research Foundation, voyaged from Sydney to Commonwealth Bay, Antarctica, and back again. She spent five weeks moored in the Boat Harbour, Commonwealth Bay, the site of Douglas Mawson's hut which was erected by his party during the 1911-1913 expedition.

Commonwealth Bay is almost directly south of Tasmania and about 2000 nautical miles from Hobart.

During the voyage and whilst moored, the writer carried out experiments on 2m SSB, aimed at using auroral scatter, to make contacts with Australian amateur stations. The call sign which was allocated to the expedition AX0PB (Project Blizzard) was used.

Equipment was a TS9130, all mode 2m transceiver courtesy Trio-Kenwood, a Mirage 160W linear amplifier and pre-amplifier courtesy ATN Antennas, a 2m horizontal dipole made at short notice by Brian VK7BP and a 10 element, 2m Yagi loaned by Ross VK2ZRU as arranged by Dick VK2BDN.

For the voyage south and return the dipole was used and the Yagi was used whilst moored in the Boat Harbour.

Each night, during the voyage, (6.12.84-24.12.84 and 6.2.85-20.2.85) from 2100UTC on 144.100MHz, for about 15 minutes, slow Morse was sent calling CQ with identification AX0PB. The CW was interspersed with voice, sent and listened at about 2 minute intervals.

The same procedure applied whilst moored between 30.12.84 and 5.2.85, only the Yagi was used. The Yagi was pointed at the east coast of Australia for about 15 minutes, then changing direction to the Perth-Albany area.

I was also operating HF daily and would come up immediately on 2m if there was any detection of what sounded like auroral effect on the HF bands. At other odd times through the day and night I would often send and listen.

Arrangements had been hurried before departure but word got through to Pierce VK2APQ, the broadcast, Gordon VK2ZAB and later to Art VK6ART, as to what the programme was.

Good contacts had been made before leaving, with amateurs on sideband in Melbourne and Hobart and it was possible to hold the Hobart repeater for about 120 nautical miles while moving south. For the rest of the time nothing was heard until we were within range of Tasmania again.

So far, a report has been received from Greig VK7KJ, who heard slow Morse on 144.100, at the right time and from the correct direction, on the night of 11.1.85. He was unable to identify the call sign.

Any other reports would certainly be appreciated.

Thanks go to those who helped, including Moonraker, Hobart, with some components and advice and Roger VK2ZTB, who suggested the experiments in the first place.

Next time this vessel goes south it is hoped to take 6m gear and attempt to give more notice of the planned activity.

There was a fair amount of activity on HF, both at sea and from Commonwealth Bay. A report of this activity is being prepared and will appear in AR when completed. **AR**

THE WESTERN AUSTRALIAN — INTERSTATE-OVERSEAS VHF/UHF STORY

75th Nostalgia

Walter J Howse VK6KZ
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Recent events on VHF/UHF included the bridging of the Perth Adelaide path (2137 km) on 432 MHz for the first time ever. The author owes his interest and activity on VHF/UHF to the late Rolo Everingham VK6BO who made the first contacts in 1951 and 1952 on 144 MHz to Clem Tilbrook VK5GL and Reg Galle VK5QR. Rolo, as well as the author and others, frequently looked to repeat his feat. This article is an attempt to bring together information on the bridging of the VK6/VK5 and VK6/VK3 paths over the period 1951 to January 1985 as well as other interstate and overseas "firsts" on 144 MHz.

50 MHz — 6 November 1948

The first VK6 to work interstate on the 50/52 MHz band was VK6HM in Kalgoorlie who made his contact at 1035 UTC on 6 November 1948 by working VK5GB (1). He was closely followed by Wally Green VK6WG in Albany who worked VK5GH at 1045 UTC. At 1109 UTC Wally worked Reg Galle VK5QR — the first of many VHF/UHF QSOs between these two amateurs as will emerge later (2). Another Wally — the late Wally Peterson VK6LW chalked up the first interstate QSO on 50 MHz from Perth in December that year (3). By April 1949, the stage had been reached where Don Hawksworth VK6DW at Bruce Rock needed to work a VK6 before he could claim the "Worked All States" award for 50 MHz. Don finished with Certificate No 3 (4). It was not until 1963 that the second such award was made to a VK6 amateur and that was to the author as VK6ZAA (5). The long gap was due primarily to the lack of activity in the Northern Territory.

144 MHz — 30 December 1951

On 144 MHz, the log of Rolo VK6BO shows that on 30 December 1951 the 50 MHz band was opened at 0108 UTC when he worked VK5MK. This was the first of a continuous stream of 50 MHz contacts until at 0705 UTC Clem Tilbrook VK5GL was worked for the fourth time that day on that band. The next entry in Rolo's log was for the 144 MHz band. Rolo gave VK5GL a 5/5-8 report and he received a 5/6-7 on AM with the contact concluding at 0712 UTC. At 0718 Rolo resumed working VK2,3,4,5,7, ZL1,2, and 4 on 50 MHz until 1330 UTC. At that time the log shows "called CQ CW ZS till 12.00 midnight (ie. 1600 UTC)". In all, Rolo had 86 interstate contacts that day on 50 MHz. This contact of 2164 km was just short of the then world record distance of 2253 km.

9 February 1952

On the 9 February 1952, Rolo called CQ at 0245 UTC on 50 MHz and worked VK5GL at 0245 and VK5HD at 0250. The next entry at 0312 UTC was VK5GL on 144 MHz with report sent 4/2-8 and received 5/6. At 0223 UTC Reg Galle VK5QR made his contact with reports of 5/5-8 sent and 5/5-7 received. Rolo called CQ on 144 MHz "on and off till 1145 (ie. 0345 UTC)" and from 0400 onwards worked VK5HD, VK5GL and VK5QR on 50 MHz with the final six metre contact recorded at 0645 UTC (6).

The equipment used at that time gives an idea of the changes now evident in technology. Clem Tilbrook VK5GL used an RL7 tritet oscillator with an 8 MHz crystal, a 6V6GT doubler to 48 MHz, and an RK34 tripler to 144 MHz with an 832 final with 18 watts input. The amplitude modulation resulted from a modulator using a pair of 6V6s in Class A push/pull. The receiver comprised a crystal locked converter with a 6J6 push/pull RF amplifier, 6J6 push/push mixer with a 6C4 cathode follower. The oscillator section used an 1852 tritet, fifth harmonic from 9.4 MHz driving a half 6J6 trebler to 141 MHz. The band tuning from 3-7 MHz was done "on a conventional 12 tube receiver". Clem's antenna comprised a four over four with the bays spaced a full wavelength apart with the top 28 feet (8.5m) high. Folded dipoles were used as radiators fed with 300 ohm open line (7). Clem commented on his QSL card *"look forward to many more contacts with you. Who knows that it won't by 288 MHz soon — here's hoping. Clem".*

Reg Galle VK5QR commented *"Clem and I intend watching each time the weather map indicates a possibility viz cold front from west to east near the coast plus a parallel isobar close to it. Both breakthroughs showed this oddity on weather maps . . . we are very keen to test one metre gear!" (8).*

Rolo's equipment is not so well documented. His colleague Don Graham VK6HK agrees with the author that the antenna on 144 MHz was a five over five array spaced a wavelength apart and the transmitter had an 815 valve in the final.

The input power on AM was 45 watts and his converter used a tunable oscillator. Because of the length of the run between the shack and the tower Rolo constructed his own open wire line.

Near Misses From Perth

In many six metre openings in the period to 1976 when Rolo died, VK6BO could be heard around 144.22 MHz, on the key, seeking to repeat his 144 MHz contacts. The nearest he came to this was probably on 1 January 1967 when Col Moore VK5RO heard Rolo at 0435 UTC (9). The Perth 144 MHz beacon was heard that day at 0305 UTC in Adelaide by VK5ZBR and VK5ZMW (10). Another near miss for Rolo was on 15 February 1970 when he recorded in his log *"At last! 07.15 heard VK5VF on 144.8".* At that time the Mt Barker two metre beacon was 5/9+ off the side of Rolo's beam. Kevin Bicknell VK6ZCB (now VK6AB) also heard VK5VF at that time at 529. These observations immediately followed Rolo's daily early morning checks with Wally Green VK6WG on 144 MHz. Wally was in Norseman at that time. VK6WG's signal was 5/2-5 in Perth at 06.45 WAST (11).

Western Australian VHF Group (Inc) and Beacons

However to revert to the general story of 144 MHz, a significant event had occurred on 30 April 1955 when thirteen amateurs met at the home of Ron Mould VK6FM in Mt Pleasant, Perth and decided to form the Western Australian VHF Group. Following an application for a permit in January 1958, this Group established the first amateur beacon in Australia on 50 MHz. This had the call sign VK6VF and was placed on air in January 1959 in Kalamunda at the QTH of Bob Elms VK6BE (Bob now lives in Albany). On 14 July 1961, the Post Master General's Department approved an application from the VHF Group and the Group established a beacon on 144 MHz in addition to its six metre one. In 1962, the Group built a six metre beacon for operation on Cocos Island which was operated under the care of Lionel Allen VK9LA. The beacons were to facilitate detection of band openings. (12)

Near Miss from Narrogin

On 3 January 1961, Kevin Bicknell VK6ZCB, who was living in Narrogin (165 km south west of Perth), worked Doug McArthur (now VK3UM), then VK5KK, crossband from two to six metres. The six metre band had been wide open with rock crushing signals. Doug had no problem in receiving Kevin's AM signal on 144.18 MHz. However Kevin had chosen that day to rebuild his two metre converter so preventing a two way contact on 144 MHz. The crossband contact continued until 1510 UTC, ie. nearly midnight local time! (13).

Bunbury/Adelaide — 8 January 1965

During a six metre opening to the Eastern States, Andrew Martin VK6ZCN (now VK3KAQ) in Bunbury (150 km south of Perth) worked Colin Hurst VK5ZHJ (now VK5HI) in Adelaide on 144 MHz at 0520 UTC on 8 January 1965. The Adelaide beacon VK5VF on 144.8 MHz was heard at 0612 UTC by Andrew but no other two metre contacts eventuated (14). The commonly accepted theory has been that Rolo and Andrew had achieved their contacts via Sporadic E. However a new phenomenon was about to emerge, to dramatically alter the thinking about east-west VHF/UHF DX.

Weapons Research Establishment Propagation Tests 1966-68

The Weapons Research Establishment of the Australian Defence Scientific Service turned its attention to the anomalous propagation over the path between Albany, Western Australia and Salisbury, 25 km north of Adelaide, South Australia. In December 1966, a VHF transmitter on 135.5 MHz, a power output of 5 kW and Yagi antenna with a gain of 12.2 dB was installed at Albany. A second transmitter on 1769 MHz at 1 kW and parabolic dish antenna with a gain of 35.7 dB was added at Albany in October 1967. Received signals at Salisbury over the 1890 km path indicated frequent openings on both frequencies. Signals on 135 MHz reached as high as 10 dB below free space and 25 dB below free space on 1769 MHz. An early report of that research published in May 1969 showed that from October 1967 to April 1968 there were sixty openings on 135 MHz of at least two hours duration, eighteen openings of 24 hours duration and one which lasted for a fortnight in January 1968. The openings on 1769 MHz were not as frequent (twelve occasions only) nor did the signal reach the same high level as at VHF. Further the VHF signal was always present when a UHF signal was received (15).

Mt Barker 144 MHz Beacon and First Contact 3 January 1969

Spurred on by the success of these tests, the West Australian VHF Group (Inc), (urged on by the then president Don Graham VK6HK) obtained a licence for a two metre beacon which was installed in October 1968 at Mt Barker, 50 km north of Albany under the care of Tom Reed VK6TR. Initially operating as VK6VF/P and later VK6VE, the beacon was heard in Adelaide and the first of many 144 MHz contacts between Albany and the Eastern States was achieved by Wally Green VK6WG and Mick McMahon VK5ZDR on 3 January 1969 (16).

After a power failure in July 1969, the beacon was rebuilt and reinstalled at Mt Barker in December 1969. In May 1970, the beacon was sold to the Southern Electronics Group based in Albany (17) and it was moved to Albany as it was thought that the inland location of Mt Barker was a great disadvantage.

The award for the unluckiest pair of amateurs might go to Rod Graham VK6ZDS (now VK2BQJ) and Charles Kosina VK6LK (now VK3BAR) who, for the three summers of 1964 to 1966, operated just east of Albany with equipment for the six and two metre bands and worked an extensive amount of DX on six metres but none on 144 MHz. Maybe six metre conditions were too good! (18).

Other Near Misses 1969-1970

Back in Perth things were also happening. Kevin Bicknell VK6ZCB was now living in Lesmurdie, a suburb about 20 km east of Perth (and about 300 metres higher!) On 17 January 1969, Kevin copied the VK5VF beacon on 144.8 MHz from 2203 to 2227 UTC (ie. 0603 to 0627 WAST 18 January 1969) at signal strengths peaking 5/9. Wally Green VK6WG in Norseman also copied that beacon at this time. On 15 February 1969, Kevin again heard the VK5VF two metre beacon with strength 3 at 0705 WAST. Reference was made earlier to Rolo Everingham hearing VK5VF on 15 February 1970 and Kevin's confirmation of receiving it. Kevin tells how at 0625 WAST (ie. 2225 UTC on 14 February 1970) he first heard the beacon at 5/9+. Frantic calling for a QSO was unsuccessful. The beacon was still audible when Kevin went out at 0952 WAST and again at 1025 WAST when he returned home. Kevin expressed regret that he did not record in his log when he lost the signal completely. (By the way, the dates 15 February 1969 and 15 February 1970 were double checked to confirm that the events described were one year apart!). On each of these occasions there was no evidence of a six metre opening (19).

First VK6/VK3 Contact on 144 MHz — 1 February 1970

Early in 1970 there was a lengthy opening from 30 January to 4 February when Bernie Gates VK6KJ made sixty six contacts to the Eastern States including the first VK6/VK3 contact on 144 MHz. This occurred on 1 February 1970 at 0050 UTC to Bob Halligan VK3AOT over a 2441 km path for a Western Australian distance record (20).

Inland Contacts

At that time Wally Green VK6WG was in Norseman and during the opening he had difficulty in attracting the attentiion of the Adelaide stations but on 30 January 1970 at 2225 UTC Wally worked Gary Herden VK5ZK for the first Norseman/VK6 contact (21).

On 3 January 1972 at 1206 and 1340 UTC Bob Pine VK6ZFY/P feeding 10 watts AM to a five element Yagi at the north east corner of the Stirling Ranges worked Kerry Adams VK5SU at Ceduna. Bob was one of the earliest, if not the first amateur from an inland location north of Albany to achieve a two-way contact on 144 MHz (22).

The Author's Experiences Along the South Coast of Western Australia

Exploration of the 144 MHz path between West Australia and the Eastern States has been a strong interest of the author, being first encouraged to investigate the VHF/UHF regions by the late Rolo Everingham VK6BO who had had the early successes on 144 MHz. The author missed two important periods described earlier, by being absent from Western Australia in 1968-70 and 1972-74. Beginning in December 1976, he has operated portable during each summer period along the south coast of Western Australia.

In 1976, the equipment used was limited to 144 and 432 MHz and the antenna depended on an adjacent post or tree or, on one occasion, one tall son for support! Contacts were made from Albany to VK5 on both 144 and 432 MHz. Learning from that experience, the author has developed a comprehensive system which enables him to set up a complete portable station for all bands from 1.8 to 3456 MHz at very short notice. This has permitted waiting in Perth until the conditions for DX appear promising before venturing to the south coast.

In 1977-78, heavy QRM in Albany resulted in a shift 20 km west to Torbay Hill. From there, many VK5 and VK3s were worked on 144 and 432 MHz. A contact on 8 January 1978 at 1316 UTC with Mike McDonald VK3ZQV (140 km east of Melbourne) resulted in a new Western Australian distance record of 2614 km for the 144 MHz band.

In 1978-79, Walpole (85 km west of Albany) was selected to see if the two metre path extended further west. Signals were heard and they resulted in contacts on 144 MHz with VK5 and VK3 over paths up to 2571 km.

Also in 1979, two-way 144 MHz contacts were achieved on SSB from inland points. On 28 January 1979 from Mt Burnside, stations as far east as Hatherleigh, near Mt Gambier (VK5MC) were worked on two metres. Mt Burnside, halfway between Walpole and Manjimup, was 35 km from the coast but the direct track to Adelaide had to cover 160 km of land before reaching the Great Australian Bight.

On 4 March 1979, the author, VK6KZ mobile, worked to Peter Smith VK5ZPS whilst returning to Perth from Albany. From roadside locations he was able to work Peter until 1310 UTC when he was 10 km north of Kojonup, ie. 150 km inland from Albany and 225 km from the Bight in the direction of Adelaide.

First VK6/VK4 Contact on 144 MHz

The first contact between VK6 and VK4 occurred on 3 May 1983 at 2150 UTC by John Harlock VK6GU at Wyndham and Steve Hutcheon VK4ZSH portable at Carnooweal using meteor scatter (23). The contact required about one hour to complete.

First VK6 to Indonesia Contact on 144 MHz — 2 October 1982

This was achieved on 2 October 1982 at about 0400 UTC. The Port Hedland repeater (1330 km north of Perth) on 147.0 MHz was opened intermittently with an occasional Indonesian word.

Mark Dunning VK6WV was the first to make contact when he got a call sign and broken English coming back to his call. Harry YD9BC and Gede YD9BR in Denpasar, Bali asked them to QSY off their official Police frequency! Contact was continued direct on 146.5 MHz FM. (24)

First VK6 to Japan Contact on 144 MHz — 23 April 1982

John Harlock VK6GU in Wyndham worked Yuki JH4JPO at 1052 UTC and then JH4XTN at 1103 UTC on 23 April 1982 for the first WA to Japan two metre contacts. The characteristic flutter of transequatorial signals was observed by him. The distances involved were 5509 km and 5501 km respectively. (25)

FM Contacts Through Repeaters

There have been VK6 and VK5 contacts made on FM through the Wagin two metre repeater (146.40/147.00 MHz) from Wagin and Katanning and also from these locations through Adelaide repeaters as well as direct on simplex. On 9 February 1979 some FM contacts were made to VK5ZCT via the Bunbury repeater (146.30/90). Detailed data on these contacts is not available to the author.

144 MHz Distance Record from Cape Leeuwin — 23 January 1980

In the 1979-80 season, VK6KZ operated from Cape Leeuwin, the most south western portion of Western Australia. This was 260 km west of Albany. On 23 January 1980, over forty eight contacts were made on 144 MHz with VK5 and VK3 stations with the longest path being 2785 km to Andrew Martin VK3YLR (formerly VK6ZCN) who was operating portable at Ross Hill, 80 km east of Melbourne. VK6KZ was using 10 watts SSB to a five element Yagi.

Perth/Adelaide on 144 MHz Again After 28 Years — 23 January 1980

However, whilst the author was operating at Cape Leeuwin, the long awaited event was happening. The Perth/Adelaide path on 144 MHz was bridged — this time by four amateurs — Wayne Dowie VK6WD, Jack Borthen VK6ZEL (now VK6KDX), Phil Casper VK6ZKO, and Ron Mould VK6FM who all worked Les Wood VK5ALW in Adelaide. Wayne made the first contact at 0003 UTC on 23 January 1980, following a phone call from Don Graham VK6HK who had heard the VK5VF beacon on 144.8 MHz after a contact with VK6KZ/P at Cape Leeuwin. Poor Don did not receive his report from Les VK5ALW to complete the contact. Other Adelaide stations worked from Perth were Ken Yates VK5RP and Reg Galle VK5QR. Signals to Perth from Adelaide disappeared at about 0110 UTC.

This opening extended to Katanning (250 km south east of Perth). Ken Thompson VK6ZFQ worked into Adelaide over a 1933 km path to Les VK5ALW at 0025 UTC. Ken had two further contacts to Adelaide on SSB during the opening viz at 1255 UTC with Col VK5RO and at 2305 with Eric Jamieson VK5LP. Ken reported hearing VK6KZ/P (237 km away) working Eastern States stations but he was unable to hear the other end of the contacts. (26)

Perth/Adelaide Again on 144 MHz — 28 December 1980

During a six metre opening to VK1, 2, 5 and ZL, on 28 December 1980, the 144 MHz band opened briefly to Adelaide. Don Graham VK6HK at last achieved two-way contacts. He worked Mick MacMahon VK5ZDR and Col Moore VK5RO. Ron Mould VK6FM also worked these two stations. The author (at home this time) heard VK5RO and was heard by him but in frantic efforts between 2245 and 2257 UT was unable to complete a two-way exchange of reports.

Receptions of beacons in Adelaide and Perth were reported on 2 January 1981 when VK5VF on 144.8 MHz was heard by Phil Casper VK6ZKO at 2228 UTC and on 3 January 1981 when T Power VK5ZPE reported hearing VK6VF on 145.00 MHz from 2107 to 2218 UT.

First Perth/Adelaide Contacts on 432 MHz — 10 January 1985

On 10 January 1985 Bob Blinco VK6KRC in Perth was in contact with Max Faulkner VK6FM in Manjimup (250 km south of Perth) on 144.100 MHz and Max asked *"who broke in"*. Bob listened and heard a voice. Thinking it may have been Peter Grumball VK6ZPG (210 km north of Perth), Bob swung his beam only to hear unfamiliar voices to the east. He proceeded to work Brian VK5KBU at 2247 UTC exchanging 5/9 reports. Bob then rang a number of Perth amateurs alerting them to what was going on. At 2302 UTC Bob made the first ever 432 MHz contact between Perth and Adelaide with Brian VK5KBU with reports of 5.9 and 5.3. The author was thrilled to work (from the home QTH in Perth), at 2258 UTC VK5KBU on 144 MHz and then VK5ZRO and VK5ZTS before working VK5ZRO at 2304 UTC and then VK5ZTS on 432 MHz. Other 144 MHz contacts by the author between 2304 and 0014 UTC included VK5ZDR, VK5NY and VK5ZPS. Tests on 1296 MHz between VK5ZRO and the author were unsuccessful.

First VK6/VK5 Contacts on 432 MHz — 11 December 1972

The Perth/Adelaide contacts in 1985 were not the first between Western Australia and the Eastern States. The first VK6/VK5 contact on 432 MHz was made by Wally Green VK6WG on 11 December 1972 with T Bellim VK5ZDY.

Wally later worked Les Jenkins VK3ZBJ, in Frankston near Melbourne, for an unclaimed world record distance of 2440 km. That distance was extended to 2460 km on 8 January 1978 by VK6KZ/P at Torbay Hill working Les VK3ZBJ and this contact was recognised as the world record. Then Aub Keightley VK6XY in Albany worked Mike McDonald VK3ZQV at Carrajung over a 2593 km path to gain the world record. He in turn lost the record when on 18 July 1979 contacts on 432 MHz were established between California and Hawaii. On 23 January 1980, VK6KZ/P at Cape Leeuwin regained the Australian distance record by working Les VK3ZBJ over a distance of 2717 km.

1296 MHz — 25 January 1977

On 1296 MHz it was once again Wally Green who made the first interstate QSO for a world record distance of 1885 km to Reg Galle VK5QR in Adelaide on 25 January 1977. This distance was extended on 29 December 1978 at 1138 UTC when the author VK6KZ, portable at Walpole, worked Chris Skeer VK5MC at Hatherleigh near Mt Gambier, South Australia over a distance of 2107 km. Reports exchanged were 559 to VK5MC and 55 to VK6KZ/P. On 23 January 1980 at 0057 UTC, the 1296 MHz 2146 km path was bridged by two-way SSB between VK6KZ/P at Cape Leeuwin and Reg Galle VK5QR in Adelaide. Later that day at 1202 UTC, Chris Skeer was worked by VK6KZ/P from Cape Leeuwin. This path was 2290 km long.

2304 MHz — 17 February 1978

On 2304 MHz it was again Wally Green VK6WG and Reg Galle VK5QR who made the first VK6/VK5 contact. This occurred at 0650 UTC on 17 February 1978. Signal strengths ranged between S1 and S7. Reg used SSB which was processed in a divide by 6 circuit and mixed to 28 MHz. The 28 MHz signal, with processed SSB, was then transverted to 384 MHz and then tripled and doubled to 2304 MHz. This multiplication by 6 restored the original SSB. Wally used a modified World War II SCR522 which, from a 7 MHz crystal, produced 128 MHz. This was then multiplied to 384 MHz with a BAY96, varactor tripled to 1152 MHz in a modified Microwave Modules MMV1296 and then doubled in a 2C39 which drew 90 mA at 600V. No other amateurs have had a VK6/VK5 QSO.

3456 MHz — Year to Come

Tests have been carried out on this band between Wally Green VK6WG and Reg Galle VK5QR since the 1979-80 summer period but as at 15 January 1985 no contacts had been achieved.

So there is the story of the VK6 interstate and overseas VHF/UHF contacts on AM, CW and SSB in the period 1951-1985 as researched by the author. So far as is known no contacts from VK6 have yet been made with amateurs in VK2, VK7 and VK8. *Will FM operators please write their story or inform the author to complete the picture?* Little comment has been made of the possible modes of propagation but this is another story to be told.

The higher frequency bands have yet to be exploited.

In summary, the first VK6/VK5 contacts were achieved as follows:

50/52 MHz band	*VK6HM/VK5GB*	*6 November 1948*
144	*VK6BO/VK5GL*	*30 December 1950*
432	*VK6WG/VK5ZDY*	*11 December 1972*
1296	*VK6WG/VK5QR*	*23 January 1977*
2304	*VK6WG/VK5QR*	*17 February 1978*
3300 MHz and up	*yet to be achieved*	

The first VK6/overseas contacts on 144 MHz have been

VK6/Japan	*VK6GU/JH4JPO*	*23 April 1982*
VK6/Indonesia	*VK6WV/YD9BC*	*2 October 1982*

REFERENCES

(1) "Fifty and up" **Amateur Radio** January 1949 p27
(2) as for (1)
(3) Personal communication to the author from Mr Graham
(4) "Fifty and up" **Amateur Radio** April 1949 p20
(5) "Worked All States on 50/52 MHz" Certificate No 47
(6) Log book of the late Rolo Everingham in the custody of the author
(7) QSL card to the late Rolo Everingham VK6BO from Clem Tilbrook VK5GL
(8) QSL card to the late Rolo Everingham VK6BO from Reg Galle VK5QR
(9) As (6) above
(10) "VHF" **Amateur Radio** March 1967 p27 (see also **WA VHF Group Bulletin** June 1967 p3)
(11) As (6)
(12) Records of the WA VHF Groups Inc
(13) Personal communication to the author from Mr Bicknell
(14) Personal communication to the author from Mr Martin
(15) L G McAllister "Radio Ducting at 135 MHz and 1769 MHz between Albany (WA) and Salisbury (SA)", Technical Note CPD(T) 173, Department of Supply, Australian Defence Scientific Service, May 1969
(16) WA VHF Group Bulletin May 1969 p3
(17) WA VHF Group Bulletin May 1970 p3 and the records of the WA VHF Group
(18) WA VHF Group Bulletin January 1967 p7
(19) As (13)
(20) Personal communication to the author from Mr Gates (see also **Amateur Radio** March 1970 p27)
(21) Personal communication to the author from Mr Green
(22) Personal communication to the author from Mr Pine
(23) "VHF UHF — An Expanding world" **Amateur Radio** October 1983 p55
(24) "VHF UHF — An Expanding World" **Amateur Radio** June 1983 p38
(25) "VHF UHF — An Expanding World" **Amateur Radio** June 1982 p48
(26) Personal communication to the author from Mr Thompson

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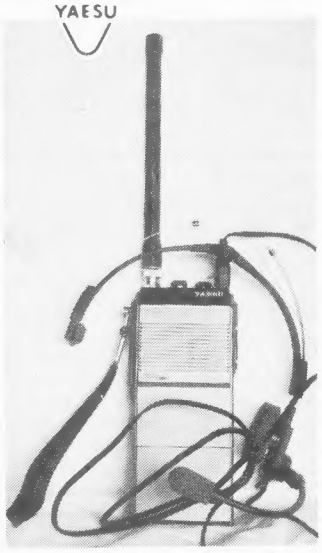

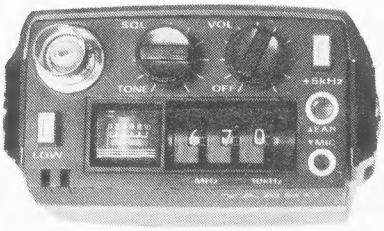

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WIRELESS INSTITUTE OF AUSTRALIA'S 75TH ANNIVERSARY NATIONAL FOX HUNTING CHAMPIONSHIP

The first Australian Fox Hunting Championships are to be held as part of the WIA's 75th Anniversary. They will be conducted at the Wagga Convention on the weekend of the 26th and 27th October 1985.

Entries are invited from interested teams who should fill out the entry form and send it to:
Australian Fox Hunt Championships,
Box 270,
Greensborough, Vic. 3088.
by the 16th September 1985.

Hunts will be held on the 3.5, 28, 144 and 432 MHz bands and there will be further advice and regulations sent to each participant.

If you wish to register at the Wagga Convention, send a normal convention registration directly to them as well as a Fox Hunt Championship one.

The trophy for this event is shown on the front cover of this months magazine. It will be held by the winning team for twelve months.

RULES

There shall be no more than four members in each team.

All equipment and team members will be in one vehicle.

Passing of information to or from teams is not permitted.

All road laws are to be observed.

The Fox will always be on public property and there will always be public access. This may not be easy to find, however. Hounds should not venture onto private property.

Each team will be issued with a single ID card which is to be handed to the fox controller when the transmitter has been located. A team may have any number of 'sniffers' but the handing over of the ID card is the only way of recording a result in the hunt.

The fox may be hidden anywhere and may not be in a vehicle.

When the fox is mobile it will obey all road laws.

The fox transmitter will not be turned off when a hound approaches unless as part of a predetermining sequence.

The fox may use any authorised mode of transmission, with due respect to appropriate band plans.

SCORING

The first team to find the fox scores zero points. Other teams score one point for each minute (or part thereof) elapsed since the first team.

After ten minutes, the fox will announce 'time up' and hounds should then assemble for the next hunt. The maximum score is ten points.

The winner of the championship will be the team with the lowest score.

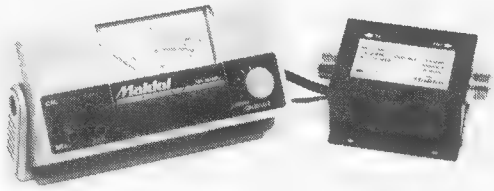
In the event of a tie, a count-back will be conducted and the team with the most wins on individual hunts will be declared the winner. If a tie still exists, a two metre sniffer hunt will be held to decide the Championship.

SUPPORTED BY ICOM AUSTRALIA PTY LTD

Icom Australia have donated a special 75th Anniversary year prize of a handheld IC-2A to the winning team.

The Wireless Institute of Australia's 75th Anniversary Committee thanks Kioshi Fukushima of Icom.

SUPPORTED BY GFS ELECTRONIC IMPORTS



GFS Electronic Imports have donated a special 75th Anniversary year prize of a VHF/UHF SWR meter for the winning team.

The Wireless Institute of Australia's 75th Anniversary Committee thanks Greg Whiter of GFS for the donation.

WIRELESS INSTITUTE OF AUSTRALIA
AUSTRALIAN FOX HUNTING CHAMPIONSHIP
ENTRY FORM

Team Leader's Name: ..... Team Call Sign: .....

Address (for correspondence): .....

.....

Postcode: ..... Phone: ( ) ..... BH ( ) ..... AH

Team Members:	1	2	3
Name:	.....	.....	.....
Call Sign: (If known)	.....	.....	.....

Booking Details:

ACCOMMODATION — persons in

☐ O'nite van ☐ Motel single ☐ Twin share ☐ Other

If other, details: .....

AN EXPERIMENT IN ANTENNA POLARISATION

Bob Slutzkin VK3SK
8 Lynedoch Avenue, East St Kilda, Vic. 3182.

Most operators on the twenty metre band will probably have observed, as I have, that virtually all the big signals from afar eminate from horizontally polarised beams. Even W1DBM's 4 x 4 array of verticals, which put in a big signal over here a few years ago was still surpassed by some of the horizontal beams.

The International broadcasters almost always use horizontally polarised panels. An exception was our Darwin Radio Australia station, which used vertical log periodics until Cyclone Tracy intervened and blew them down. The station has been restored again, but this time with horizontal panel arrays. Another instance of International broadcasters using vertical polarisation was in the 30s or 40s when the BBC had a large Franklin array for their broadcasts to India. An interesting paper (the reference for which I have now lost) described how the Franklin required maintenance, so the stand-by dipole was commissioned during the exercise. Reports came back from Delhi that signals were much better. This triggered off a series of controlled tests over a period of time; and these led to the cautious conclusion which went something like this:

> *Over the path in question, at the frequencies in use, and during the prevailing Ionospheric conditions, it might appear that the horizontal dipole gave a better performance than did the vertical Franklin array.*

All this might suggest to us amateurs that we might be able to do better with horizontal polarisation.

In spite of this, vertical antennas have many advocates. In CQ Magazine, Commander Paul H Lee W3JHR wrote convincingly in favour of verticals for DX, in November 1962. Then, as Captain Paul H Lee W3JM, wrote a magnificent twelve-part series, as good as a handbook, on vertical antennas, in the June 1968 through May 1969 editions of the same magazine. This, plus all the various texts on the subject in the literature should enable any radio amateur to design, erect and adjust an effective vertical antenna to suit his needs; so why is it that we hear so very, very few big signals from verticals in distant lands? Has the ground system anything to do with it, perhaps? An efficient ground system might be a little difficult, expensive or laborious for a lot of us on our suburban lots; but International broadcasters would not be put off by such minor difficulties, and they seem to prefer horizontal panels. Does Ionospheric propagation prefer horizontal polarisation perhaps? The widely accepted theory seems to be that, irrespective of the polarisation of a transmission, once it has encountered the ionosphere, it will continue to the distant point, to reappear with its polarisation randomly mixed; suggesting that the polarisation of a transmission would be of no importance. Perhaps this is an over simplification of a complex subject.

Realising that I will never find all the answers, I nevertheless set about to do some experiments. I used a quad, the polarisation of which I could change from the shack.

The polarisation of a quad element is dependent on the position of the feed point. If the element is fed at the top centre or bottom centre, its polarisation is horizontal. If it is fed at the centre of either side, its polarisation is vertical. My quad was of diamond configuration, and it had a very good bazooka type balun built into one of the support arms. The boom could be revolved like an axle, by a horizontally mounted Stolle rotator; and as the loops turned like wheels, the feed point would change from bottom, to side, to top, to the other side, the polarisation changing in the process. It was a tri-band quad, but I concentrated in optimising its performance at 14.250 MHz, with the idea of conducting the experiments very close to that frequency. This project started early in 1978, at a beach house at Blairgowrie, Victoria, which is on the Mornington Peninsula, about 30 km across Port Phillip Bay from Melbourne.

Harold Tribe VK3AVH provided some valuable help in the early adjustments of the quad. About 750 m from my QTH he had a 4 element Yagi 15 m high, and was good enough to keep many scheds with me across this rather doubtful antenna range. In the end, I could repeatedly measure a front-to-back ratio at the design frequency of better than 25 dB, and a cross polarisation rejection of better than 20 dB. By accident we discovered that Harold's dummy load leaked sufficiently for measurements to be made across our "range"; and fortunately that leakage radiation was vertically polarised, enabling us to do the cross polarisation tests two ways.

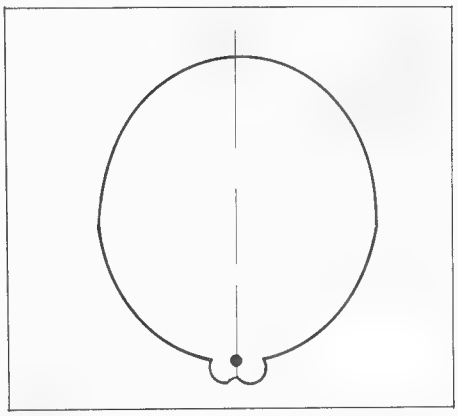


Figure 1 — Azimuth pattern of a quad antenna.

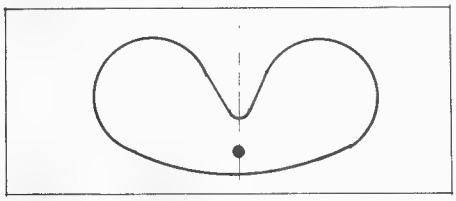


Figure 2 — Cross polarisation azimuth pattern of the quad.

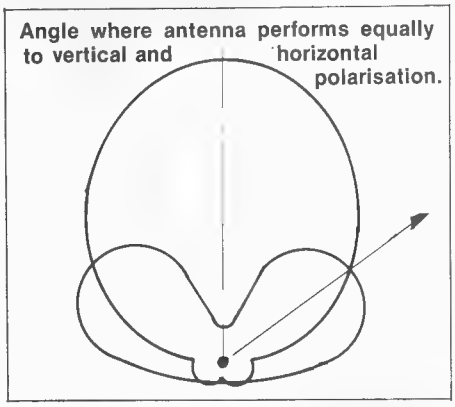


Figure 3 — Figures 1 and 2 superimposed.

During the front-to-back runs, I could see that the quad's azimuth response conformed generally with that shown in the text books (see Figure 1) but I considered that there would be no point in trying to plot it, because of the inadequacies of the "antenna range". The cross polarisation azimuth response was interesting. There were two forward lobes (as depicted in Figure 2), but again there was no attempt made to plot this. More about these later. The tests certainly gave me confidence in the performance of the quad as a beam, and in the effectiveness of the polarisation control. Not only was the front-to-back performance optimised for 14 250 MHz, but also the SWR was minimised for that frequency, at almost 1:1. There was no practical change in the SWR with changes in the quad's polarisation, which would suggest that the balun was effective, and that as the loops were revolved to change polarisation, the radiation efficiency of the quad itself would remain constant. (I believe that any change in radiation efficiency would be accompanied by a change in impedance and SWR) Satisfied that the quad was efficient, it was time to commence the main part of the project, namely to investigate the effects of polarisation on propagation. This part continued intermittently for about two years, at which time the Stolle started to malfunction (possibly because it was not designed to operate on its side). As a temporary measure, to allow the Stolle to be checked over, the quad was fixed for horizontal polarisation; but other projects have become more pressing now, and I cannot see myself continuing the polarisation tests

During the two years, thousands of observations were made. No statistical analyses were carried out; but a fairly definite trend was apparent, as will be shown.

OBSERVATIONS

Over DX Paths:

The large majority of tests were made over the short and long paths to USA, next came the short paths in the Pacific area, and the long path to Europe. Listening tests showed that on no occasion was the quad better in its vertical polarisation condition; neither was mixed polarisation (half way between the two positions) any better, strengthwise. I did endeavour to test the possibility of mixed polarisation improving fading conditions but was unable to obtain any evidence of this. A minority of tests indicated that the polarisation change made no significant change in signal strength. The majority of tests showed horizontal polarisation to be superior, by at least one S unit and sometimes more than two S units

On those occasions when I had a QSO with the DX station and obtained reports on my signals as I changed polarisation, these reports showed good agreement with my reciprocal observations.

Local Working:

As would be expected, matching the other party's polarisation was best for close contacts; but strange things happened across Port Phillip Bay to stations 50 or so km away. I had quite a number of QSOs with VK3ADR, VK3IY and the late VK3AHR, all of them using beams

Most often, signals were better both ways when my quad was vertically polarised, but on some occasions conditions favoured the horizontal setting.

Tests with a Mobile Station:

When Jim Rumble VK6RU motored across to Melbourne from Perth, this gave me a wonderful

opportunity to test the antenna. We kept daily scheds all the way across; and did the polarisation test each time. From Perth (about 2700 km away) to Adelaide (about 600 km from me) signals were significantly better in each direction with the quad horizontally polarised. As Jim left Adelaide climbing the Lofty Range, this was still the case. During the sched on that morning, as he reached the top of Mount Lofty, there was a spectacular increase in his signal to S 9 + 20. At this stage I did the polarisation test, and to my surprise changing to vertical polarisation improved signals by at least 10 dB I am still puzzled about the mode of propagation over that 550 km path on that day; because, once he reached lower ground we lost contact.

DISCUSSION

Except for local contacts, and over unusual paths, the quad performed better when horizontally polarised most of the time. Had it been at a different height (it was 15 m above the ground) with different foreground conditions, or had an entirely different part of the spectrum been used, the results may not have been the same. However, some comments could be made on the tests that were carried out:

1 We do not know with any certainty that the quad's radiation efficiency remained constant as the polarisation was changed; but it would be reasonable to assume that it did — particularly, as I did measure the impedance and SWR as the loops were being revolved and observed virtually no change. Let us assume that the efficiency was constant.

2 We could therefore claim that horizontal polarisation was better for most DX paths — ie from the quad itself, across its foreground, through the ionosphere, to the distant station. Was it the foreground (where a horizontally polarised signal undergoes a phase change at the point of reflection, and the phase of a vertically polarised signal is not changed) which caused this effect? If so; a different location, different antenna height, different ground conductivity or terrain could produce different results. It is my guess that it was the foreground, because otherwise the theory that ionospheric waves are randomly polarised would be under suspicion.

3 An explanation is needed, therefore, for the inconsistency of the results. Why, on some occasions, was no significant change in signal strength observed with the polarisation change? And why was the observed change different on different occasions?

Figure 1 shows the general shape of the quad's polar pattern, ie its azimuth response to a horizontally polarised signal when set for horizontal polarisation. (This is only estimated, because it was not measured and could not be measurable accurately over our doubtful antenna range). Figure 2 shows the cross polarisation polar pattern (also not measured for the same reasons). Figure 3 shows these two patterns superimposed; and it can be seen that there is intersection between the two patterns. Because of the lack of detailed information of the individual curves, we do not know with any certainty where the intersections occur; but what this indicates is that at some angle to the side of the main lobe's centre, revolving the quad loops would make no difference to the polarisation performance; because at that angle the quad's polarisation would be half horizontal and half vertical If you want to be fussy, the radiation pattern of an antenna cannot be expressed fully as in Figure 1 and 2, but these figures represent the supposed azimuth patterns at one particular vertical angle of radiation. The size and shapes of the lobes would be different at different vertical angles. Therefore that magical azimuth bearing where the antenna performs equally to vertical and horizontal polarisation might be expected to vary over a range of vertical angles of radiation.

As I was not always certain to have had the beam pointing over the optimum path (and many of us must have observed, particularly, over very long paths, that the best signals do not always come in on the great circle bearing) this could be an explanation of why some observations showed a parity between vertical and horizontal polarisation. Had I thought of this at the time I would certainly have checked that I was beaming optimumly before each test.

CONCLUSION

I cannot help but conclude that for the higher frequency bands, at the vast majority of amateur station locations, horizontally polarised antennas are better for DX. I said "higher frequency bands" because these are the bands where an antenna can be mounted high enough above the foreground in terms of wavelength. When a horizontally polarised antenna is strung up an eighth of a wavelength or less above the ground, the ground will act as a reflector and cause most of the signal to be radiated at very high angles. I think you need to have a horizontally polarised DX antenna at least a half wave above ground — the higher the better. Therefore, for the lower frequency bands a vertical might be expected to do better, particularly if a good ground system can be employed.

Before signing off, I must tell you about my friend W2GCX who has a 60 ft x 40 ft all aluminium (or aluminum) mobile home in Florida for winter use. It is a huge complex of similar mobile homes; and no antenna of any kind is permitted. There is no ban on flagpoles, so he has one (complete with traps) mounted at roof level. He flies Old Glory most of the time, but he sometimes flies the Aussie flag that I sent him (when conditions between us are poor). We are amazed at the excellent and consistent contacts we have had over the long path when he is down there, even when conditions aren't the best. His 60 x 40 aluminium ground system, good location, and undoubtedly the Aussie flag make it work well . . . but then, his signal is never as good as those from the boys with horizontal beams.

AFTERTHOUGHT

An interesting thought comes from Figure 3. For reception, a quad may have a disadvantage over a Yagi in locations where directional properties are required to help reject strong QRM from locals — a typical situation in most parts of USA. I do not think that a Yagi would have a cross polarisation response that the quad has, and most Yagis that I have encountered have a very deep null off the side and towards the rear. The null would be drastically reduced by the quad's cross polarisation response, in my opinion. **AR**

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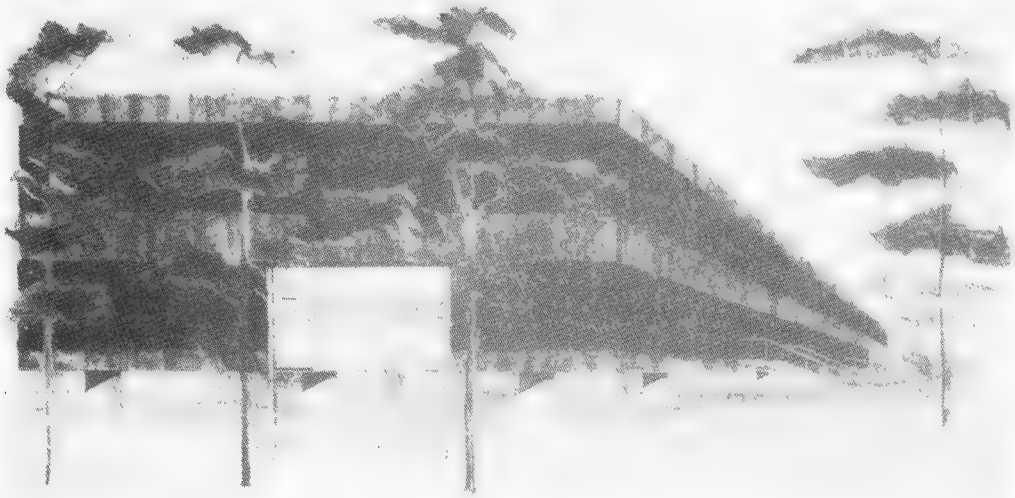

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SOME COMMENTS ON ANTENNA GAIN

Graham Wiseman VK5EU,
19 Washington Street, Hilton, SA 5033

Whenever a potential user examines published literature and advertisements, describing antennas and evaluating antenna gain, what stands out is the wide variation in actual figures quoted, often on otherwise similar antenna types. Another factor is the use, or more often than not, the lack of use of terms such as gain with reference to an isotropic radiator or dBi, gain with reference to a dipole or dBd, pattern gain, and many others. Here we will briefly look at the difference between these figures and at some other important antenna characteristics.

There are numerous antennas and antenna models that are used as standards for comparison. Some of these are:

THE ISOTROPIC RADIATOR

An antenna model — not practically realisable. Used as a standard of comparison as it has the most basic pattern. Radiates equally well in all directions.

THE HERTZIAN DIPOLE, OR SHORT DIPOLE

Not accurate when used as a reference antenna due to lack of ability to discriminate against error causing reflections. A very short dipole, length much less than a quarter wavelength. Pattern similar to the familiar half wave dipole but flatter "doughnut".

Gain 1.76 dB above that of an isotropic radiator, ie 1.76 dBi.

THE HALF WAVE DIPOLE

Not accurate when used as a reference antenna due to lack of ability to discriminate against error causing reflections. Familiar "doughnut" pattern.

Gain 2.15 dBi or 0 dBd.

EIA STANDARD

Consists of two half wave dipoles fed in phase, mounted in a prescribed manner above a plane reflector.

Gain 9.85 dBi or 7.7 dBd.

ANTENNA GAIN VS SIZE

Assuming the same efficiency, all circular aperture antennas with the same gain will also have the same beam width and aperture or capture area.

From this we can see that in order to increase gain, we must increase aperture and decrease beam width, or alternatively improve efficiency.

A simple way of comparing antennas is to compare their apertures (where similar efficiencies can be assumed).

Rules for evaluating aperture (for comparison purposes).

Parabolic 'Dish' antennas	*aperture equal to surface area*
Corner Reflector antennas	*aperture equal to surface area*
Horn Antennas	*aperture equal to front surface area*
Yagi Antennas (optimum)	*aperture equal to an area included by a circle of diameter equal to the length of the boom of the antenna*
Helical Antennas	*as for Yagi antennas*
Log Periodic Antennas	*difficult to evaluate but is proportional to length of active area at the frequency of interest*
Collinear Antennas	*aperture equal to frontal surface area, plus a strip around the outside equal in width to the 'half aperture' of a dipole.*

COMPARISON BETWEEN MEASUREMENT METHODS

There are two commonly used methods used to evaluate antenna gain, one direct, the other indirect.

REAL OR DIRECT GAIN MEASUREMENT

With a fixed transmitting source, a comparison is made between the voltages measured at the terminals of a standard gain antenna, and that at the terminals of the unknown gain antenna.

PATTERN GAIN OR INDIRECT METHOD

The half power beam width of the antenna to be tested is measured and the formulae relating gain and beam width is used to determine a gain figure.

This method makes no allowance for aperture and coupling efficiencies of less than 100 percent. This consequently gives higher gain figures than direct measurement. It is however much easier to use than direct methods.

ANTENNA BANDWIDTH

Firstly let us oppose one commonly held belief. There is NOT necessarily any correlation between the frequency or range of frequencies at which an antenna exhibits good or best VSWR (voltage standing wave ratio), and that where good or best gain occurs.

One glaring example of this that the author found was a commercial '470 MHz' antenna which exhibited a VSWR of 1.1 : 1 at 465 MHz and almost no gain. Best gain occurred at 560 MHz where the VSWR was 2 : 1.

BANDWIDTHS OF DIFFERENT TYPES

NOTE — considerable variation occurs between different designs, the figures shown are representative only.

Collinear antennas — conventional types are limited to about 4 percent at best or about 17 MHz at 420 MHz.

Extended expanded collinear arrays are limited due to matching constraints, to between 1 and 2 percent or about 8.5 MHz at best at 420 MHz.

Yagi arrays vary considerably depending on driven element type, element size and whether optimum or non optimum. An optimum (maximum gain) conventional long Yagi will probably be well below 1 percent bandwidth, possibly 0.5 percent whereas a near optimum Log Periodic Yagi or Swan Yagi with large elements can achieve better than 10 percent bandwidth with ease.

Helical antennas properly designed can achieve bandwidths in excess of 50 percent.

Reflector type antennas, eg Parabolic and Corner Reflector. Bandwidth is determined principally by the driven or feed element or device. Feeds used include the above antennas, also triangular, biconical, horn and other types. Bandwidths achieved can be multioctave.

TIPS FOR EVALUATING PARASITIC ARRAYS (YAGIS ETC)

Several points worthy of note have been found by the author and others over a period of many years of experimentation.

The elements should not be mounted through the boom unless welded both sides · with time, corrosion between the boom and the element at the points of contact, causes variation in the electrical length of the element with a resultant change in characteristics and loss of gain. Elements isolated from the boom are to be preferred.

Wood booms are subject to similar effects to the above, although not so severe except in extreme contamination. Losses in the wood are also significant, particularly when wet or contaminated.

Element material is relatively unimportant when medium and large element sizes are used (also provided non ferro-magnetic materials are used). Tests made on a dipole antenna at 144 MHz using 3/8 inch (9.5 mm) diameter elements, of aluminium in one case and austenitic stainless steel in the other case, showed less than 0.2 dB difference the two in spite of a 5 : 1 difference in resistivity.

Antenna types with 'gain' driven elements, eg log periodic Yagis and quagis, appear to be less critical in design and construction than conventional types. A change in element length of 1/16 inch or 1.6 mm at 420 MHz reduced the gain of an optimum conventional 13 element Yagi by 8.5 dB. Similar changes made to log periodic Yagis have minimal effect.

FORMULAS RELATING GAIN, BEAMWIDTH AND APERTURE

Antenna gain dBi = 10 log K

$$\left(\frac{30000}{\Theta_H \, \Theta_V} \right)$$

for small beamwidths

where

Θ_H = horizontal beamwidth 3 dB points in degrees

Θ_V = vertical beamwidth 3 dB points in degrees

K = coupling efficiency

Antenna gain dBi = 10 log K' $\left(\frac{\pi d}{\lambda}\right)^2$

for a circular aperture

where
d = diameter of aperture
λ = wavelength
K' = aperture efficiency

EFFECTIVE APERTURES OF SOME SMALL ANTENNAS

Isotropic radiator

$$\frac{\lambda^2}{4\pi}$$

Very short dipole

$$\frac{1{\cdot}5\lambda^2}{4\pi}$$

Half wave dipole

$$\frac{1{\cdot}64\lambda^2}{4\pi}$$

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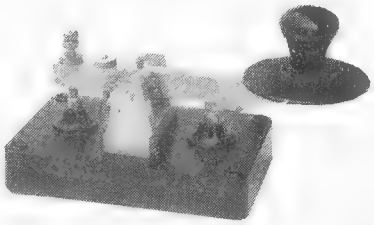

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THE WOODPECKER PROJECT

Bill Martin VK2COP,
33 Somerville Road, Hornsby Heights, NSW. 2077.

Given up on the Woodpecker ? Read on ....

The war against the 'woodpecker' still wages, and, contrary to the beliefs of many amateurs and short-wave-listeners, the various intruder watches and monitoring societies are still gathering information for yet another thrust at this greatest-of-all sources of QRM to the short-wave radio listener.

For those who have just tuned in — The 'Woodpecker' is a colloquiallism for Over-the-Horizon-Radar, which is a defence early-warning system employing high power pulses. The signal is reminiscent of a woodpecker, hence the title. Technically, the signal is a 3 milli-second square-wave pulse with a stable pulse-rate of one tenth of a second. Rates of 17 and 7.4 seconds have been heard, but rarely. The signal is wide-band, with most of the signal concentrated in about 15 kHz, and a weaker 'pulse-scape' filling the adjacent spectrum. The energy concentrations can be clustered together to cover 100 kHz or more. The 'Woodpeckers' change frequency abruptly and often. Their 'dwell-time' varies from a few seconds to a few minutes.

At the 1978 WARC for Aeronautical Services, an anti-Woodpecker statement was signed by eight countries in attendance, and there is some evidence that the Woodpecker QRM in those bands diminished — at least for a while. Similar attempts at ridding the HF bands of the pest have met with little success, and diplomatic overtures have been found to have apparently been in the wrong key. Consequently, "The Woodpecker Project" is under way, and is co-ordinated by the Association of North American Radio Clubs OTH Radar Committee. A major exercise is planned for October 1985, utilising a large number (about 720) volunteer monitoring stations. Each station will be asked to monitor parts of the radio frequency spectrum between 5 and 23 MHz for three-hour periods during the month. If each monitor covers 3 MHz, and at least three geographically-separated monitors are scheduled for each time and band-segment, then at least 144 monitors are needed for a 24-hour coverage. A minimum five days of data is desired. Volunteer monitors will be asked to sweep the assigned band segment for three hours over the 3 MHz segment at will, BUT TO TUNE EVERY FREQUENCY AT LEAST ONCE EVERY 10 MINUTES. This information will be logged graphically. Of course, it is equally important to know when the Woodpecker is NOT transmitting.

The Woodpecker has been observed spending a great deal of time around 10.7 MHz lately. That happens to be the intermediate-stage frequency of a number of popular short-wave receivers. Some of the less expensive models have poor image rejection, so that when the Woodpecker stops at 10.7 MHz, it can be heard across the radio's entire tuning range. It is reported that England and Japan may get OTH radars. America has it, of course, as has the USSR and Australia.

SURFACE-WAVE OTH RADAR

An experimental variant OTH radar is being developed which operates only over the sea. If vertically-polarised radio waves are transmitted close to the sea surface, they induce electrical currents in the water which causes the radio waves to adhere to the sea surface and therefore travel around the curvature of the earth. There is also a good possibility that the reflected energy will couple with the sea surface for the return journey. The proposed frequencies of operation are unknown, but this development could be yet another potential interference threat to communication services.

So you see, the battle is not over. The Association of North American Radio Clubs (ANARC) is to be congratulated on its efforts to do something about the Woodpecker, and concerned amateurs and SWLs will no doubt be interested in the outcome. When next you hear the Woodpecker (and you will), send in a report to the WIA Intruder Watch. Write to your Divisional Intruder Watch Co-ordinator, or to Bill Martin VK2COP, WIA Federal Intruder Watch Co-ordinator, 33 Somerville Road, Hornsby Heights, NSW. 2077.

AR

HOW LONG IS A DOT?

Guy Fletcher, VK2BBF
3/34 Benelong Road, Cremorne, N.S.W. 2090

The last year or two has seen a proliferation of calculator-based and computer-based methods of generating random Morse code characters for practice purposes. In order to produce Morse at a known speed, you need to know the duration of a single dot at that code speed. Surprisingly no two programmes seem to agree about the length of one dot.

Morse code is designed for people rather than for machines. An efficient machine code, such as Baudot, has every character the same length, whereas in Morse code the common letters like E, I and A are shorter than less common letters such as Q and Z. This feature appreciably shortens the time to send a plain-language message of a given number of words and dot duration.

It is commonly agreed that a "standard word" has five letters. A dash is exactly equivalent to three dots. In the case of ITU Morse code, the spacings are one dot between dots and dashes, three dots between characters (letters), and seven dots between words.

It ought to be easy to work out the number of "effective dots" or dot durations in a standard word, but it isn't quite as easy as you might think.

The Length of a Letter

The number of effective dots in a given letter is easily added up. The letter A has one dot, one dash (of length three dots), and one space (of length one dot) between them, making a total length of five dots. Similarly B has a total length of nine dots (three for the dash, one for each of three dots, and one for each of three spaces) and so on through the alphabet.

We need to know the average length of a letter in dots, but it is not correct simply to average all twenty six letters of the alphabet.

The Frequencies of Letters

You can build a device to send random Morse code at exactly ten "words" per minute, in the sense that it will generate exactly ten groups of five letters each minute, with all letters equally probable. This is a great way to learn Morse code, but the characters are NOT really being sent at ten words per minute.

If you take any sentence of ten real words, chosen so that it has exactly fifty letters in it, and then send it with exactly the same length dots and dashes as for the random code above, it will take, on average, about 49 seconds. This is because the sentence contains relatively more of the shorter letters like E, I and A. Obviously the sentence is being sent "too fast". If the speed of Morse code in words per minute is to have any real meaning at all, then in amateur circles at least it HAS to refer to words of plain English language.

The frequency of use of each letter of the alphabet in plain language text can be found by literally counting the number of times each letter appears in a long piece of text. Computers are good at doing this, but it is very laborious manually. The answer depends slightly on the kind of text chosen. It is a little different for, say, a novel than for a technical article. But these differences are slight. Table I shows the average number of times each letter is likely to appear per thousand total letters. These figures are taken from some research a few years ago (1) but are not likely to be greatly in error.

TABLE I
Average occurrence of letters in plain English language

Letter	Times in 1000 letters	Length in dots
A	86	5
B	14	9
C	28	11
D	38	7
E	131	1
F	29	9
G	20	9
H	53	7
I	63	3
J	1.3	13
K	4.2	9
L	34	9
M	25	7
N	71	5
O	80	11
P	20	11
Q	1.2	13
R	68	7
S	61	5
T	105	3
U	25	7
V	9.2	9
W	15	9
X	1.7	11
Y	20	13
Z	0.8	11

Length of an Average Letter

The data in Table I can be used to find the total duration (in dot lengths) of a message containing 1000 letters, broken up into 200 words of average length of five letters each. This average message will contain 86 As each of length five dots, 14 Bs each of length nine dots, and so on. In addition there will be 200 spaces after words, each seven dots, and 800 spaces after letters not at the end of words, each three dots. The grand total is 9818 dot lengths.

The length of an average letter can be found by taking the total for the 1000 letters alone (without the spaces between letters and words). This is 6018 dot lengths, an average of 6.018 dots per letter, and is an average of the lengths of all the letters, weighted by the frequency of each letter. This should be compared with the straight average of 8.231 dots when all letters are weighted equally.

It is worth noting that the letter frequencies used refer to plain English language text. Other languages such as French or German will be somewhat different, and the corresponding length of one dot for a particular "words per minute" will also differ slightly.

The Length of a Dot

We are now ready to write down the correct length D1 of one dot for a given word speed of L words per minute. Our 200 words should take 200/L minutes or 12000/L seconds. Since the whole message contains 9818 dot lengths, each dot should take 12000/(9818 L) seconds, so

$$D1 = 1222/L \text{ milliseconds.} \qquad (1)$$

This may be compared with 997/L milliseconds if the letters had been equally weighted.

If the figure of 1222/L milliseconds for one dot is used in a computer programme, the speed will be exactly equivalent to a plain language speed of L words per minute. However it must be emphasised that L groups of random letters will actually take 73.5 seconds, and this does not mean that the speed is wrong.

Non-ITU Morse

It is quite common to speed up the dots and dashes to a length somewhat shorter than the correct ITU length discussed above, and to leave correspondingly longer gaps between letters and words. This practice makes the code slightly easier to receive (because of the longer thinking time between characters), and is an important aid in learning Morse code. The individual letters can be sent from the beginning at 8 WPM (as in the novice examination) so as to become used to the correct letter speed, yet the overall word speed may only be 5 WPM or less.

A Morse code programme on a computer should therefore provide for independent setting of the letter speed and word speed. The letter speed L, expressed in words per minute, is equivalent to the words per minute of ITU code of that dot length. The length of each dot is given by equation (1) above.

The word speed W is the actual number of 5-letter plain-language words sent in a minute. Since the spaces between letters

and words are lengthened, clearly W must be less than L.

It is actually more convenient, in a computer programme, to leave the first dot after each letter unstretched (at D1), and to stretch (to D2) only the remaining two dots between letters and six dots between words. This has the effect of slightly changing the ratio of word space to letter space from the ideal 7/3, but the Morse is not ITU code anyway. The practical advantage gained is that it is not necessary to identify the final dot or dash of a letter in order to decide whether to stretch the following space; EVERY dot and dash is followed by a single unstretched space.

Our average message of 200 words now contains

(i) 1000 letters of total duration 6018 dots, each D1,

(ii) 800 spaces after letters, each (D1 + 2*D2),

(iii) 200 spaces after words, each (D1 + 6*D2).

This adds up to a total duration of (7018*D1 + 2800*D2), which must be equated with 200/W minutes, or 12000/W seconds. D1 is already given by equation (1) above, and substitution of this leads to

$$D2 = \frac{4286}{W} - \frac{3064}{L} \text{ milliseconds.} \qquad (2)$$

You can see that if W = L (for ITU Morse), equation (1) is recovered.

The pages of AR (and other magazines) have been well decorated with listings of computer programmes in recent months. The detailed code for generating dots and spaces depends on the machine used, so I will refrain from giving my own programme, which uses the formulae derived above. However I will list its features, since any versatile programme for teaching and learning Morse code should have these:

Division of the characters into 6 sub-sets A-G, H-M, N-T, U-Z, the 10 figures, and 4 punctuation marks (full stop, comma, oblique slash and question mark). While punctuation is not examined, these 4 are needed on air.

Character set for practice to be selectable from any combination (or all) of these 6 sub-sets, or from a string entered on the keyboard. This enables concentrated practice on any desired characters.

Choice of group (ie word) length, with option for random length (in the range 3 to 7 characters).

Independent choice of letter speed and word speed (both expressed in words per minute) using equations (1) and (2).

Choice of number of groups in a "block" (ie message).

Use of standard START and STOP signals round each block of groups.

Output of ASCII characters for subsequent checking if desired.

Simple options for changing speed and number of groups without completely restarting the programme.

An automatic option in which the programme repeats after a pause of, say, 10 seconds. This is useful for generating cassette tapes.

The actual dots and spaces are normally generated from programme loops. The cycle times of these loops depend on the machine used, and the expressions for D1 and D2 above must therefore be multiplied by conversion factors. The easiest way to set these conversion factors accurately is to choose a speed of 0.1 WPM and time the dots and spaces with a stop watch.

To achieve accurate Morse code it is necessary to write very compact programme code in the section which actually generates the audible characters. All possible repetitive calculations should be performed in advance of this. Using only interpretive (non-compiled) BASIC without machine code subroutines, I have been able to generate Morse code on a pocket computer up to 25 WPM before the spacings depart perceptibly from the ideal. Higher speeds are easily achieved using a machine code subroutine for the spaces.

REFERENCE

(1) "On Human Communication" by Colin Cherry, MIT 1965.

Postscript

The word PARIS has sometimes been used to define a typical word for the purpose of calculating Morse speeds. Including four spaces between letters and one space between words, PARIS has a total length of fifty dots.

This corresponds to a dot length D1 = 1200/L milliseconds. Comparison with equation (1) shows only a 2 percent difference from the "correct" value of 1222/L milliseconds.

THUMBNAIL SKETCHES

LYLE PATISON VK2ALU

When only 13 years old and living in Lane Cove, Lyle was introduced to radio by a family friend, Merv Norris, at Greenwich. Merv's home-made TRT fascinated young Patison to such an extent that Merv gave the lad some bits and pieces to keep him occupied. This led to the beginning of Lyle's lifetime hobby with radio. Starting with a crystal set (he still has some of the parts) he graduated through a TRF receiver to a seven valve superhet, on which he heard the declaration of WWII.

After gaining his intermediate certificate at 15, Lyle left school and joined RCS whilst awaiting an electrical apprenticeship with the Sydney City Council. Starting on the production line at RCS, his avid interest in radio soon had him promoted to their laboratory.

An opportunity for a position as an apprentice electrical operator in the Railway Power Stations arose and Lyle found himself on shift at White Bay Power Station in April 1940.

The publishing of Radio and Hobbies in 1939 led Lyle's interest into amateur radio. In between his trades technical courses and shift work, Lyle found time for self-education in radio theory, regulations and Morse and he obtained his AOCP in March 1942 with 12 WPM, however WWII kept him off the air.

Lyle joined the Air Force Reserve in 1942 and started rigorous training in Morse under the watchful tuition of Mrs McKenzie. He graduated to 20 WPM,

In March 1943 he joined the RAAF and departed to the UK via Canada to join an Illawarra Lancaster squadron as a navigator.

It was during this time that radar techniques attracted Lyle's attention — microwave, dishes, wave guides, klystrons, etc.

Lyle returned to civilian life in 1946.

Back to shift work at White Bay and doing an electrical diploma part-time, Lyle somehow found time for amateur radio and was first on air on 166 MHz on 29th June 1946 using CW.

In those days, Prices Radio in Angel Place, Sydney was the Mecca for amateurs and that's where all the 'fancy disposals gear' was appearing. Soon Lyle had some of this gear cranked up on 576 MHz and was building, what was possibly the first crystal controlled rig in Sydney on 144 MHz.

Promotion within his work took Lyle to country power stations in Cowra and Tamworth, with a short stint at Port Kembla, but he still managed to find time to work on the VHF bands — his major interest.

On his return to Wollongong in 1962 he became a foundation member of the reformed Illawarra ARS. Lyle spent a year as president in 1967/68 and still is actively involved in the club.

The CSIRO had its initial 'large' radio telescope at Dapto but with the advent of time this was closed down and was lying idle. Lyle looked longingly at the dish but the CSIRO donated it to the Wollongong University. Fortunately, the University knew nothing about radio telescopes but were keen to get it working. Lyle convinced them that the Illawarra club would be an ideal organisation to rejuvenate the dish and the first confirmed EME contact by VK2AMW was made on 10th March 1973, after many months of overhauling the dish and home-brewing gear for 432 MHz.

Vandalism forced the closure of activities for a time but Lyle found a new location and re-established the gear. He also made some new equipment suitable for operation on 1296 MHz.

As a result of his untiring and persistent work, with EME, the club station VK2AMW is well known internationally. Lyle received the Ron Wilkinson Award for his moonbounce activity this year and was also awarded life membership to the Illawarra Club for twenty three years of unstinting duty.

As Lyle retired from the workforce in 1984 he now has ample time to pursue his hobby???

Compiled from an article in The Propagator, June 1985 which was written by Don Reynolds VK2ZRK.

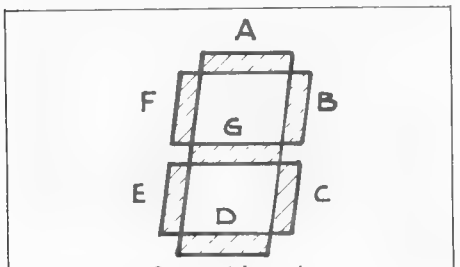
ADD ON MODIFICATIONS FOR THE SIEMENS TELEPRINTER

Peter Fraser VK3ZPF
52 Heathfield Rise, Box Hill North, Vic. 3129

A SHIFT INDICATOR

This is the first in a series of projects you can add to the Siemens Model 100 Mark 1 teleprinter. It will include a counter that shows how far from the left hand margin you are, a figures or letters shift indicator, and a power supply (built into your machine) to run the add ons. To construct these you will need a soldering iron, solder, pieces of matrix board and lots of patience. Now what RTTY'er hasn't got that?

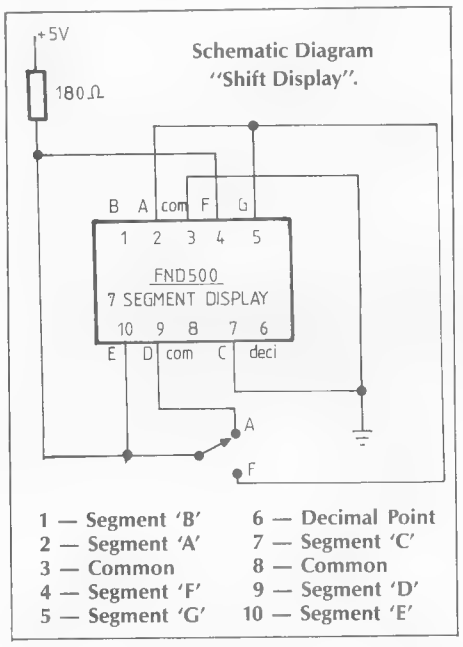
The indicator uses a 7 segment display to show either an 'L' for letters or an 'F' for figures depending upon the shift you are in. The display used by the author was a FND 500, a "common cathode" device. Any "common cathode" display could be used, but I found the FND 500 was large and the easiest to read.



Segment Layout.

CONSTRUCTION

The display is mounted on a piece of matrix board, fastened to a strip of aluminium which can be screwed to the right-hand side of the platen. It should be mounted so you can see it easily through the glass when the cover is down. The 180 ohm resistor is best mounted on the power supply board (to be described later in this series).



HOW IT WORKS

Segments 'E' and 'F' are wired 'on' at all times and through SW-1 segments 'D' is lit to represent an 'L' when in letter shift. In figure shift segments 'A' and 'G' are lit to show an 'F'. The +5V is taken from the power supply. SW-1 is a micro-switch mounted in such a way that, when the carriage goes up and down, the switch also goes on and off. The switch can be mounted on a right angle bracket fashioned from tinplate or aluminium, then screwed, using the existing screws, to the rear frame of the machine. A suitable place for the switch is in the middle of the back frame above the motor. Here, if you look, you will see a lever that pokes in and out as the carriage goes up and down. The switch needs to be bent so that it follows the travel of this lever and switches as the different shifts are selected.

So that's the 'shift indicator' which, when fitted, is very handy if you are distracted halfway through something and don't know if you are up or down.

Next in this series is a power supply to run the indicator and a counter to be described later.

AR

QSP

MORE HISTORY

The Institute wishes to thank Clem Scott VK4DW for his generous donation of an article from TECHNICS magazine.

Following is Clem's covering letter.

This Historical Article is from an old TECHNICS magazine published in 1905 which I have had in my possession for some forty years.

On reading the Paper we find that Prof. Fleming first demonstrated and described the vacuum valve later called a diode in an article to the Royal Society in 1889.

The author then goes on telling of the consequences of the fact that incandescent carbon and metals send out vast numbers of electrons. Then with circuits relevant to the occasion explains in a very clear manner the results of same.

If you don't already have this article then I hope it can be of some enjoyment to those who go to your library for a quiet read of some of the history of those experimenters who paved the way for us fellows who are now enjoying amateur radio.

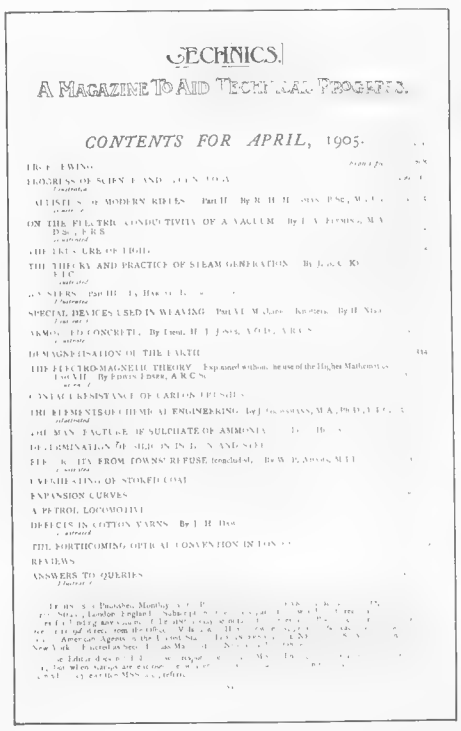
Thank you for a first class magazine in AR.

Vy 73,

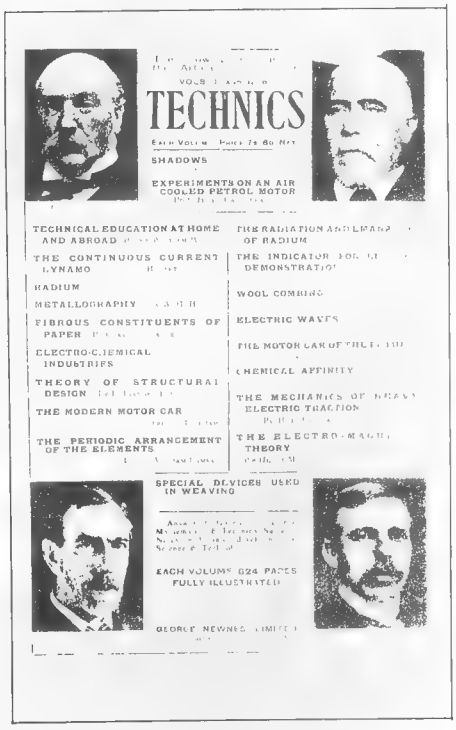
Yours sincerely,

Clem Scott VK4DW,
18 Cullen Street,
Bundamba, Qld, 4304

M


TECHNICS
A MAGAZINE TO AID TECHNICAL PROGRESS.

CONTENTS FOR APRIL, 1905.



THE TCA 1675/1677, A CHEAP LINEAR AMP

Lloyd Butler VK5BR
18 Ottawa Avenue, Panorama, SA 5041.

If you have a spare 1675 or 1677 in the shack, the final stage of the transmitter can easily be utilised as a linear amplifier to boost the power of your low power 2 metre or 6 metre equipment. There are quite a few units about for sale, at low prices, if you wish to acquire one for the job.

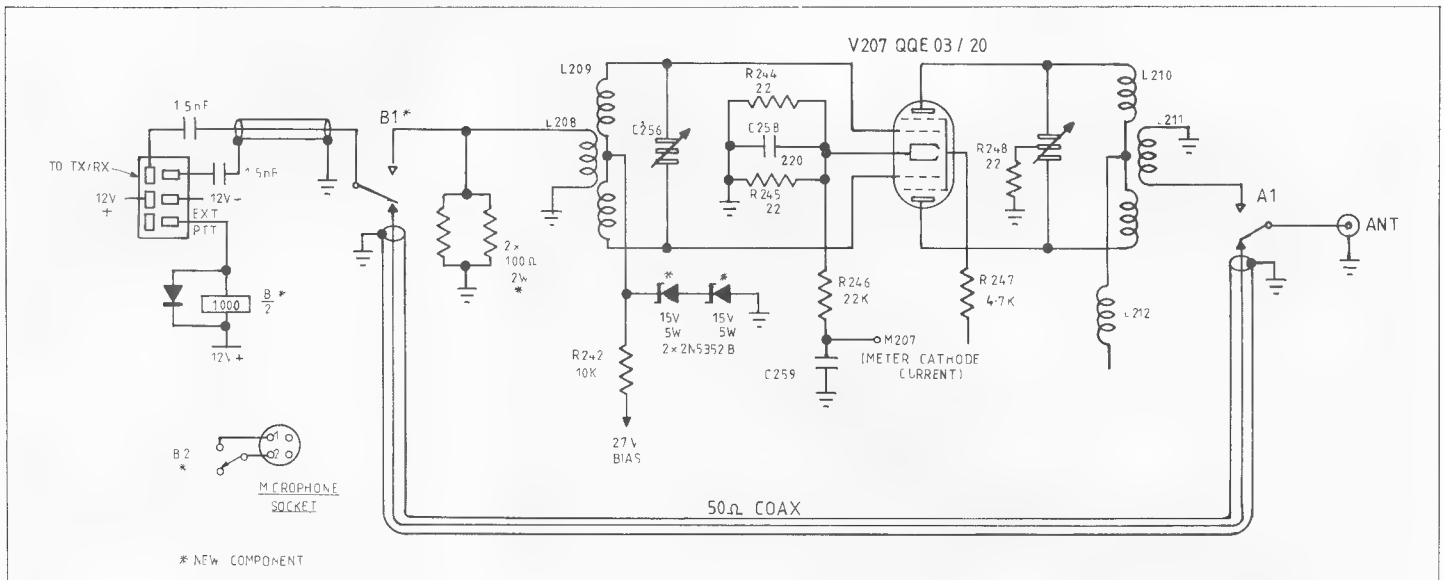


Figure 1 — Use of the 1675/1677 PA as a linear amplifier.

To operate an RF power amplifier valve in a linear mode, the following must be satisfied:

Grid bias must be set, approaching plate current cut-off, so that the stage is operated in class AB2 or class B.

The grid bias supply voltage must be stabilised so that it does not rise when the signal voltage swings positive and causes grid current to flow. Loading of the RF drive source with a low resistance is required to stabilise the grid load and prevent grid current flow from flattening the signal peaks.

In the case of the 1675/1677, the transistor power supply provides high tension of about 250V and 550V and a bias supply of around 26 to 28V. The bias voltage works out nicely to operate the QQE 03/20 amplifier in class AB_2 and this bias is stabilised by series connecting two 15V, 3 watt zener diodes at the grid feed point, centre tap of L209.

Two parallel connected 100 ohm 2 watt composition resistors are connected across the primary of the grid coil L208. This correctly terminates the 50 ohm coax link from the transmitter driving source and loads the grid circuit to prevent clipping during positive signal peaks due to grid current flow.

The modified final amplifier stage is shown in figure 1. The existing relay A provides transmit/receive switching for the amplifier RF output but an additional 12V relay B must be added to also switch the amplifier input. Coil L208 is disconnected from the previous stage and connected to contacts B1 to provide input switching. Normal contacts of A1 and B1 link the antenna circuit for receiving. A further set of contacts, B2, connect to the 1675/77 PTT circuit at the microphone socket to turn on the power supply when switched to transmit.

The frequency multiplier stage valves, 12AT7 and QQEO2/5, are withdrawn from their sockets. The 12V supply to the transistor stages in the remainder of the transceiver can be disconnected, if desired, but it doesn't really matter as they consume little current.

If the 1675/1677 has not been previously modified for amateur band use, some changes might have to be made to the tuning range of L209-C256 and L210-C261. If a harmonic filter (L217, L218, C278-280) is fitted, this should be disconnected, (Modifications to the tuned circuits are well described in Amateur Radio, July 1975).

The circuit has worked well on 6 metres using an IC502 as the driving source. With one watt of peak envelope driving power, the amplifier delivers about 20 to 30 watts PEP to the antenna. Equal performance is anticipated on 2 metres.

AR

TRY THIS

ETCHING CIRCUIT BOARDS

Bevan Hay VK4ABV,
MS 346, Nanango, Qld. 4315.

Reading Roy Hartkopf's article about circuit board etching I thought it worth mentioning an alternative type of etchant for circuit boards. It seems most people use Ferric Chloride, as have I. This solution suffers from one drawback, namely, you can't see what's going on. There is a solution, if you'll pardon the pun. Use a solution of Hydrogen Peroxide and Hydrochloric Acid, about equal parts of equal concentration.

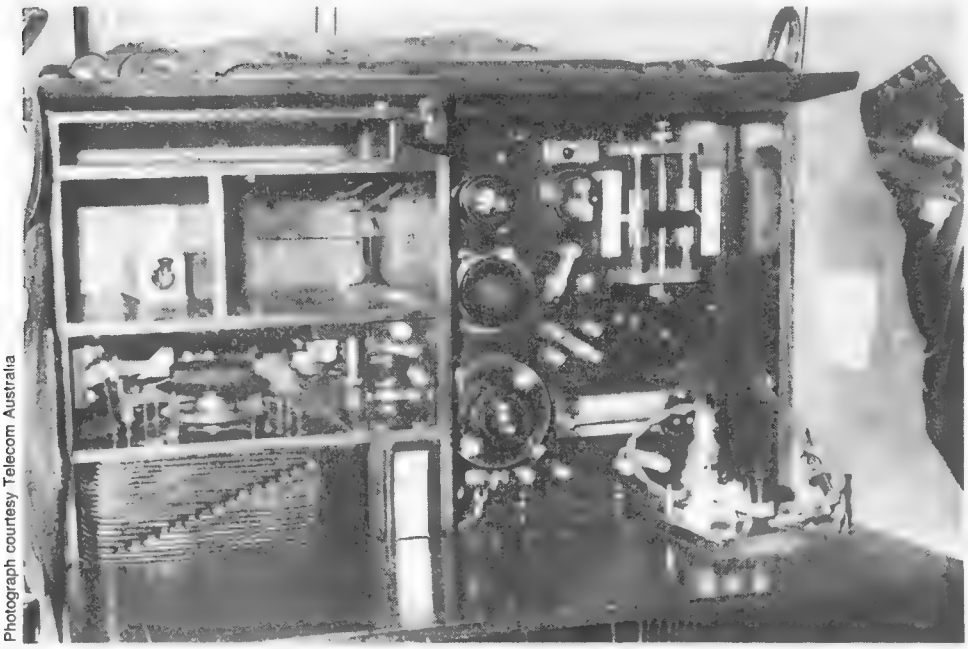
The chemistry is quite simple, the Hydrogen Peroxide reacts with the copper producing Copper Oxide, which is then dissolved by the Hydrochloric Acid producing a pale green solution of Copper Chloride, through which the progress of the etching can easily be seen. I usually do it with a fairly concentrated acid and peroxide for fast results, though this is not necessary and good results can be obtained from dilute solutions.

If you use concentrated Hydrochloric Acid I strongly recommend that the job be done out-of-doors as the fumes from concentrated Hydrochloric Acid are dangerous.

AR

A LITTLE ABOUT WIRELESS IN THE FIRST WORLD WAR

The particular spark transmitter and receiver, photographed and described on this page, was one of six built by Marconi of London in 1915 and sent to Australia for use in the first world war. This unit was used in 1916 by signallers at the Mitcham Army Camp in South Australia before being sent to Melbourne to be packed for despatch overseas.



Photograph courtesy Telecom Australia

The transmitter and receiver ready for operation.

In December 1915, urgent cables were received in Australia and New Zealand from India, asking for the loan of men to help out the scanty communications of India's Expeditionary Force "D" which was operating in Mesopotamia.

Both countries responded and offered to supply and maintain complete wireless units in the field.

So the 1st Pack Wireless Signal Troop was formed with one officer and 54 other ranks from NSW and Victoria. This Troop arrived in Mesopotamia on 19th March 1916 and on 18th April a New Zealand troop arrived. Both troops were camped at Makina a short distance from Basra. Each troop supplied four pack wireless stations.

On 25th April, the first Australian station went up river and attached itself to the 15th Division at Khamisayah, on the Euphrates.

In March 1916, the Imperial Authorities asked the Commonwealth to increase the wireless establishment at Mesopotamia, which resulted in the 1st Australian Wireless Signal Squadron being formed. It arrived in Mesopotamia on 6th July 1916. The Australian and NZ troops already there were absorbed into this Squadron and they soon became known as "The Anzac Wireless".

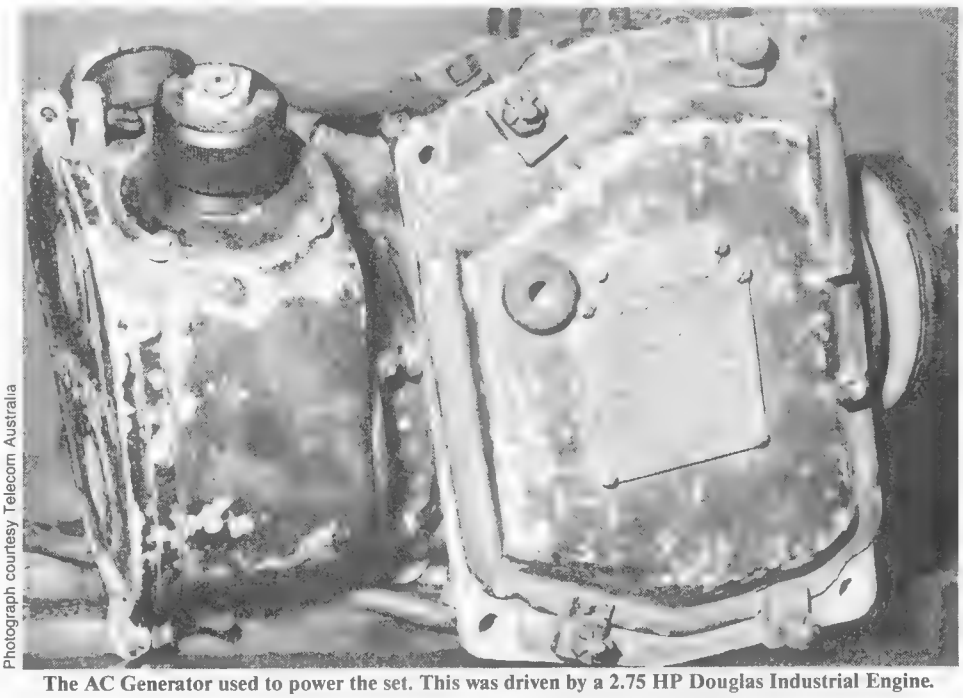
As the army moved up the Tigris and the Euphrates, so too did the wireless. The Cavalry

The 'portable wireless sets' were considered marvels of their time, for their compactness and lightness. They weighed about 330 lb (150kg) each. A unit could be set up ready for operation within ten minutes by five or six men and once set up required two men to operate it. It had a guaranteed daylight range of 35 miles (56km) but in daylight it could work two to three times that distance and at night up to 200 or 300 miles (322-483km).

The transmitter was a 0.5kW rotary spark set driven by a Douglas air-cooled petrol engine with a solid flywheel. It was the same engine Douglas used in their motor bikes at that time. It ran at 1800 rpm.

The receiver employed a carborundum crystal detector with bias provided by a couple of dry cells through a potentiometer and was designed to operate from 300-1300 metres by the operation of a band change switch. It was fitted with two galena crystal detectors.

The transmitter unit was located in the bottom section of the equipment case and contained an iron core transformer connected to the alternator by a flexible cable, tubular Leyland jar type condensers. RF chokes and the HF closed circuit. The receiver, operating controls and key were contained in the top section. To quieten the spark in operation, a metal cover was fitted over the rotary gap section.



Photograph courtesy Telecom Australia

The AC Generator used to power the set. This was driven by a 2.75 HP Douglas Industrial Engine.

Division had three pack sets and maintained continuous contact with headquarters whilst the cavalry was on the move. This meant that one station at a time halted, erected its two masts, cleared its traffic, dismantled, packed up and galloped with the cavalry rear-guard, who had waited for it, to catch up with the main body of the Division.

So as the army advanced into Baghdad and beyond into Persia, so too did the wireless stations. All messages were in five letter cypher, no plain English and the letter 'V' was used for 'from', not 'DE' as is used today.

As well as the unit described above another unit, a 1.5kW Wagon set was used. This receiver was similar to the one above but the transmitter had a 7 HP water cooled engine, also made by Douglas. The alternator and components were larger, also.

Throughout the service of the wireless operators in Mesopotamia and Persia thousands of messages were transmitted and received, which were of vital importance to the Army operations, without delay or error.

Photography courtesy Telecom Australia

A very portable transceiver? The spark transmitter and receiver in its carry case.

A large portion of the operators were ex Post Office or Railway Telegraph operators but quite a few were "Wireless Hams" or in todays language radio amateurs.

References: "Wireless in the 1914/18 War" by the late Arnold Holst VK3OH. "The History of Radio in South Australia" by John F. Ross.

Compiled by Bett McLachlan from material submitted by Jim Davies VK7OW.

Photographs courtesy Jim Davies VK7OW. **AR**

TRY THIS

Sam Pascoe VK6KSP,
45 Nicholson Road, Subiaco, WA. 6008

YAESU FT-480R TWO METRE TRANSCEIVER — A simple modification

I was discussing the various pros and cons of the FT-480R on air recently and mentioned my disappointment at the lack of a 'reverse' switch. This switch provides the ability to listen to the repeater input frequency as an alternative to the output. Jack VK6BU mentioned that on all FT-480R units that he was aware of, the careful and SLOW movement of the satellite switch achieves this.

After a lot of jiggling of the switch, I found that my rig was an exception to this rule. So, out came the circuit diagrams and a short time later I was able to make a reasonable guess as to what was happening.

The following diagrams show the modifications that have been made.

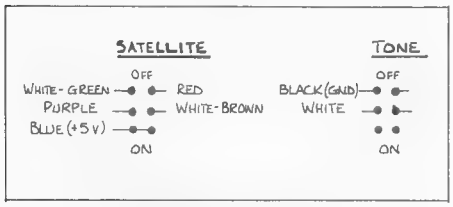


Figure 1: The Original.

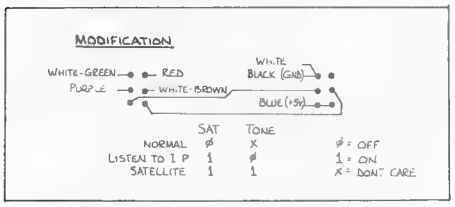


Figure 2: Modification. With this modification transmission is disabled while listening.

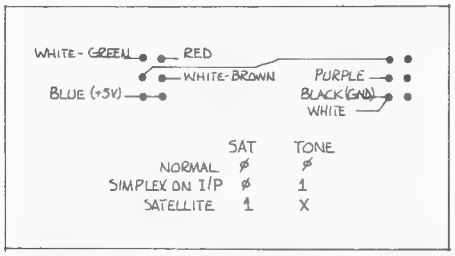


Figure 3: Alternative. (Possibly a better one). With this modification transmission is enabled in simplex on the I/P frequency when the TONE switch is in the ON position.

Underneath the rig is a small panel supporting three switches, labelled Satellite, Scan and Tone. All mods are made directly on two of these switches. The only disadvantage (possibly) is that the tone burst on/off function is lost. In the diagrams it is shown permanently wired to the OFF position. To make it permanently ON just disconnect and tape-up the white lead to the tone switch.

Note: All diagrams are viewed from the solder lug side.

AR

LOW COST SIGNALLING SYSTEM FOR LITTLE USED RAILWAYS

An electronic token signalling system to be installed on British Rail's East Suffolk line between Ipswich and Lowestoft in eastern England could also be ideal for lightly used railway lines throughout the world.

For railways with only a few trains in each direction per day, replacement of old or obsolete signalling may be out of the question, but an electronic token system could be installed to keep these lines open and improve their operating efficiency.

The system is operated from one signal box which is in contact by radio with each train under its area of control. The line is divided into sections with "Stop and exchange token" boards to mark the end of each section. Before a train is authorised to proceed into a particular section it must have received the electronic token for that stretch of line.

Such tokens can only be transferred following a co-operative procedure between signalmen and driver. Each train is fitted with a cab unit which has a unique identity number. The electronic tokens are transmitted by radio in the form of coded data messages and on receipt are displayed by suitable messages on the visual display unit in the train drivers cab.

A computer-controlled solid-state interlocking (SSI) ensures that only one electronic token can be issued to each unique train unit. Before an electronic token is issued the SSI also ensure that the particular token has not already been issued to another train and also that no token for a conflicting movement has been issued to any train.

With passenger safety always of paramount importance, the computer installation is triplicated to guard against malfunctions. At least two out of the three computers must output identical information before an electronic token can be issued.

The equipment to be supplied to British Rail by GEC-General Signal Limited comprises the main signal box equipment (including the SSI cubicle) plus 24 train cab units. It is also planned to equip Chief Civil Engineers' vehicles with electronic token equipment for authorisation of track maintenance possessions.

from Information Technology from Britain

AR

75th Nostalgia

The following article is from the VK2 Divisional Archives and is contributed by Tim Mills VK2ZTM. Written by the then President of VK2, Charles Maclurcan A2CM, it looks towards the future for wireless and the WIA from the 1920s era, possibly written around 1923. Much of the article still applies today, particularly the reference to amateurs "uniting in the Wireless Institute." It is also interesting to note the Patron at this time.

The Wireless Institute of Australia

(NSW DIVISION)
Charles D Maclurcan (President)

Wireless development needs as its strongest factor every encouragement given to experimenting and in this repect the Australian system covering broadcasting is practically the most liberal in the world, in as much as it gives a free hand to broadcasters, provided of course, they do not encroach upon the regulations under which broadcasting is carried out.

It, however behoves all Australian experimenters to work together, not only in experimental work and so improve the utilisation of wireless, but also in order to see that every encouragement is given to the public to partake of the advantages of wireless as offered them by legitimate broadcasting concerns; hence experimenters, by having such a great trust placed in them by the Government authorities, will return the compliment by doing all in their power to see that the arrangements are given best test.

With the remarkable development of wireless in the last decade we can look for still further developments in the near future, hence the broadcasters must ever be on the alert to peer into future developments and so put on record the advantages won in their experimental work.

There are many problems that they must face, for instance the overcoming of the weakening of wave power by statics, and also solving the problem regarding the one way inefficiency of messages between two certain points, particularly where equatorial districts have to be covered.

By being classed as an experimenter in wireless no mean privilege is given to such, because such are really on the verge of a future which practically lifts humanity into the etherial and is really man's first touch with the infinite given in practice instead of theory.

We, as experimenters in this great science, feel we are specially privileged and we trust that while we enjoy same it shall have something placed on record to merit the honor that has been given us.

The direction of the future developments of wireless will cover such problems as the direction of aerial traffic, the transmission of natural colored photography, and practically the solving of that glorious forecast, the speaking with one voice that can reverberate round the earth.

Experimenters, therefore, have a great responsibility and they can best protect that responsibility by uniting in the Wireless Institute.

It has been said that "There's many a slip 'twist the cup and the lip." How truly applicable is that old quotation to the many vicissitudes which have beset the Institute during the fourteen years of its existence.

Inaugurated in 1910, March of that year to be exact, the then Wireless Institute of New South Wales was the first Technical Radio Association to be formed within the British Empire, and the ambitions of the enthusiastic though small band of original experimenters in this wonderful science have been more than realised by the position of the Institute to-day in the very front rank of Scientific Societies.

If only that small band of originals had been able to lift the veil of the future when they took the initial step of forming this Society, they would have been amazed by the intricate tangles in store for their successors in the years to follow. In this regard it is most gratifying that a round dozen of them are still actively associated with what has now become the New South Wales Division of the Wireless Institute of Australia.

Courage, determination and sincerity are the three outstanding qualifications of the Institute to-day as in the past, and recent events have proved that the faith of the Institute's founders in the righteousness of their cause, has been retained as one of the most precious possessions throughout the Institute's existence.

The principal objects underlying the formation and administration of the Institute may be briefly summed up as follows:—

(a) For the Association interested in the encouragement and scientific development of radio communication in all its branches.

(b) To provide a centre of information, instruction and advice on all matters pertaining to radio communication.

(c) To consider, originate and promote reform and improvements in the law; to consider proposed alterations and oppose or support same; to effect improvement in the administration of the law, and for the said purposes to petition Parliament or take such other proceedings as may be deemed expedient.

In regard to (a) and (b) the results so far achieved speak for themselves. In regard to (c) the Institute has always played its part fairly and has been responsible in very great measure for the development that has taken place in Australia.

Earlier in this year the Institute conducted a series of tests receiving signals transmitted from experimenters in the United States, the power used at the transmitting end being only 100 watts. The great success obtained prompted the Institute to go further, and a series of tests has just been concluded wherein American experimenters again transmitted to Australians, and the local experimenters transmitted back on the same low power, 100 watts. Although the results of this latter test are not yet definite from the point of view of Americans receiving the Australians, still it is gratifying to know that 88 stations in the States have been logged in Sydney and Melbourne.

When broadcasting was first seriously, considered in Australia, the Institute took a prominent part in the compilation of the regulations to suit local conditions, and it is felt that the best possible steps have been taken in Australia to place this wonderful feature of radio on a comprehensive basis to suit local conditions and avoid the many complications which have occurred in other countries.

The severe test came when war broke out in 1914. The shortage of wireless operators for military and transport purposes was acute, and it is a matter of history that seventy-five percent of the then Institute members were immediately absorbed on emergency active service. There were but few of the Institute's members who, on account of age, were not absorbed in war service, and the value of such men in time of national crisis was and ever will be invaluable.

Charles D Maclurcan.

Patriotism is very dear to the Wireless Institute and one of the principal requirements before admission to membership is that candidates must be of British nationality. Other qualifications and conditions of membership, as well as annual subscriptions are compatible with the standard to which the Institute has attained.

There is a distinct division of the Institute in each State of the Commonwealth with headquarters in all the capital cities, and with the incidence of the Australasian Radio Relay League, it is anticipated that the co-operation between Divisions will be greatly enhanced. The keen co-operation between interstate divisions in the past has been of the greatest possible advantage to experimental work and the projected activities of the immediate future will require complete unison and much hard work on the part of all concerned.

Of the Executive of the Institute to-day, of which I have the honour to be president, I cannot say too much in praise of their self-sacrifice in doing all in their power to help the cause of wireless to still better opportunities, and in justice to them, it is only fair that their names be put on record:—

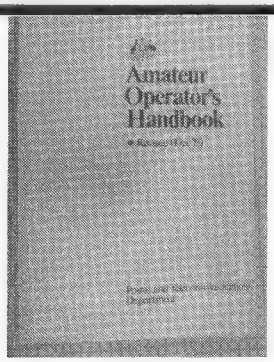
Vice-presidents: F Basil Cooke, FRAS, E B Crocker; Councillors: Major W H Newman, H Rigby Gregory, S V Colville, H A Stowe; Publicity Officer: A H Perrett; Honorary Treasurer: O F Mingay, Honorary Secretary: Phil Renshaw, AMIEA.

Charles D Maclurcan.
President.

Senatore Marconi, Patron,

DE-REGULATION AND SELF-REGULATION: WHAT DOES IT MEAN?

Allan Foxcroft, VK3AE.
FEDERAL COUNCILLOR



Nowadays "de-regulation" has become almost a "catch cry" in Government administration — for example, the de-regulation of the Australian Banking System and proposals for similar action in the Dairy Industry have brought the subject to the public notice. It may come as a surprise to some readers that the WIA has had de-regulation and self-regulation as an endorsed forward planning objective since 1981 when the Federal Convention decided officially to *"aim for de-regulation and self-regulation in negotiations"* (with DOC). Unfortunately, the two terms sometimes tend to be regarded as interchangeable and some misunderstanding can result if one does not clearly differentiate between the two.

EASING OF FORMAL REGULATION

The term de-regulation implies the easing of the formal regulation of amateur radio — the streamlining of regulations and the elimination of all that are unnecessarily restrictive or no longer applicable to present-day conditions. This can be a useful and productive exercise, but to my mind it does not get at the major question *ie how, the service should be regulated after the dead wood has been removed.*

We should be concentrating most attention on the transfer of much of the responsibility for the orderly conduct of our hobby from the licensing authority to the amateur himself, *ie self-regulation more than de-regulation.* Of course a basic framework of regulations must continue to be applied by the DOC — the formal licensing of operators in the service, the allocation of frequency bands and co-ordination with other services are activities which appear more appropriate to the licensing authority. Nevertheless, there are a number of "regulations" dealing with conduct and procedures which could be self-administered, more in the form of guidelines than as conventional regulations.

WE SHOULD BE GETTING TOUGHER

Naturally there are opponents to the easing of formal control of the service, in fact some with rather extreme views would no doubt prefer to see a tightening-up of the regulations. *"We should be getting tougher on offensive behaviour of all kinds". "We should be making the observance of WIA Band Plans obligatory rather than gentlemen's agreements, as at present". "We should increase control on the use of repeaters"* and so on. Yes — by all means let us campaign strongly against undesirable features of amateur conduct, but NOT by the introduction of increasingly formal regulations by the DOC. Instead we should be building up the self-discipline of the Amateur Service by education and by improving, in a friendly, co-operative manner, the operating conditions of our service.

ONLY TAKE PLACE BY GOODWILL

First and foremost, the process of self-regulation can only take place and be sustained by continuing goodwill and mutual confidence between DOC and the amateur body as a whole. It must be engendered by clear demonstration of a highly responsible attitude and a willingness and ability of the amateur fraternity to control its own affairs in a competent and effective manner. We are fortunate that currently this most important ingredient for change is present. There is a tremendous goodwill between the DOC and the WIA — backed by a very genuine and sympathetic desire on the part of the DOC Radio Frequency Management Division to regulate in the best interests of amateur radio.

SHIFT THE BLAME

An example of this attitude can be found in the DOC approach to the solution of Electromagnetic Compatibility and immunity problems. Not so long ago, when interference (other than harmonics and spurious emissions) was "caused" by a licensed amateur station to domestic electronic equipment, the onus for clearance of the problem was almost automatically placed on the amateur station rather than on the recipient of the interference. The present and commendable attitude of the DOC is to shift the "blame" to where it should generally reside — with the electrical equipment manufacturer or the installer who has failed to provide adequate immunity to high RF fields.

The changes which we envisage cannot take place without added responsibility being placed on the amateur bodies — particularly the WIA. They must become even more responsive to the needs of all amateurs — to represent overall amateur views more accurately and to take all views into account when speaking and acting as the amateur representative. An increase in the percentage amateur membership of the WIA is most desirable — but more importantly the organisation and administration of the WIA must be tightened up to meet these needs.

CENTRAL CO-ORDINATOR

I must respond to those who express concern that the WIA does not adequately recognise the rights of non-members to their independent views and should not seek to act on behalf of all amateurs. It is a fact of life that an organisation such as the WIA, able to claim better than fifty percent representation of Australian amateurs and able to speak with one voice will be heeded more than individuals. If the democratic process of consensus is to be pursued, there must always exist some central co-ordinating body. Moreover, if a greater degree of self-regulation is to be applied in the Amateur Service, there will be even greater pressure for that co-ordinating body to possess the strength and ability to represent a majority view of amateurs, of which only the WIA is capable.

The concern of non-members can be eased by a concerted effort to improve the representation and responsiveness of the WIA to overall amateur needs as mentioned previously. This is no mean task when one recognises the great diversity and even conflict of interests to be represented. Amateur radio is, in fact, many hobbies within a hobby and all should be considered and given their appropriate weighting. We should continue to prepare and administer band plans for the amateur frequency allocations, with perhaps greater firmness than heretofore — we should be co-ordinating the use of bands above 30 MHz to ensure that the most effective use is made of all the techniques at present available (here let me stress the word "co-ordinate" in contrast with controlling or directing, which should be resorted to only where absolutely necessary). We should be fostering and again "co-ordinating" the introduction of new techniques — ensuring that flexible procedural guidelines are available where required and that they are directed to the greatest possible benefit for the majority of experiments.

GREATER DISCIPLINE

So, to conclude, let's summarise what self-regulation should mean to the Amateur Service. It is not an easy road to follow. It calls for greater self-discipline by all active amateurs. It calls for a greater awareness of the objectives and values of the amateur service by its members as a whole and a tolerance for "the other fellow" who may wish to pursue a facet of the hobby totally different from one's own inclination.

If the WIA is to spearhead the trend, (as it should), then it must receive greater support by amateurs in terms of membership numbers. Its organisation and lines of communication should be improved to ensure that it is always able to speak with authority for the whole of the amateur population. We must always act in a responsible, tolerant and professional manner in all forums at which the amateur interests are to be represented and by clearly demonstrated competence, foster the wholehearted support of the licensing authority, the amateur and the industry as a whole, *What do you think?*

SKY HIGH PIRATES CONVICTED

A plumbing company has been convicted for illegally using amateur hand held two metre transceivers.

In the Melbourne Magistrate's Court on 13 June J L Williams Pty Ltd pleaded guilty to six identical charges.

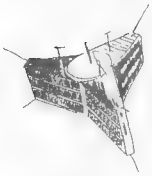
The Department of Communications prosecuted the firm under the Wireless Telegraphy Act for using an appliance without authorisation for the purpose of transmitting messages.

The court case followed a visit by DOC officers to the tallest building in the southern hemisphere — the Rialto in Collins Street.

In the raid on 1 February, DOC seized six transceivers which were operating on 144.495 MHz. They were being used for communication by workers installing air-conditioning.

The company was fined a total of $110 and the units were forfeited.

THE STORY OF OSCAR 10



Visit by Dr Karl Meinzer DJ4ZC to Australia

Bill Rice VK3ABP
54 Maidstone Street, Altona, Vic. 3018

The WIA was notified in April 1985 that one of the leading participants in the development of the Phase 3 amateur satellite, which is now operational as OSCAR 10, was to visit Australia during May. Dr Karl Meinzer DJ4ZC had been invited to address the ZL Convention in Christchurch over the weekend of 1-2 June, during a round-the-world trip, and was invited by Graham Ratcliff VK5AGR (our AMSAT Co-ordinator) to add Australia to his itinerary. In a very busy week at the end of May DJ4ZC addressed meetings of amateur satellite enthusiasts in Adelaide, Melbourne and Sydney. The Melbourne meeting was held on 28th May at the Box Hill College of TAFE, the venue being arranged at rather short notice by the Eastern and Mountain Districts Radio Club in conjunction with the VK3 Division and the Federal Office.

David VK3ADW introduced Karl DJ4ZC to the audience.

Karl was introduced to the audience of about 55 people by the Federal President, David Wardlaw VK3ADW, and Jack O'Shannassy VK3SP, representing EMDRC. He then outlined the history of the Phase 3 project from its beginning as a joint concept by himself and Jan King W3GEY in 1973. It was intented to go into a high-level sub-synchronous orbit at an inclination of 57 degrees, with 50 watt transponders enabling good coverage of a large part of the world at any one time, the actual region changing slowly as the earth rotated within the orbit. Transponders were proposed for Mode B (70 cm up, 2 m down), with an onboard computer controlling a built-in propulsion system for optimising the orbit, as well as housekeeping functions (transponder scheduling, solar power budget, engineering telemetry, etc).

GLOOM!

After years of hard work, mostly by the AMSAT-DL organisation, but also involving AMSAT-USA, NASA and ESA, the satellite, plus commercial payloads, lifted off in 1980 from Kourou in French Guiana aboard the second of the Ariane series of rockets. A faulty fuel-valve caused premature first stage shutdown, and many millions of dollars worth of hardware plunged into the South Atlantic!

The West German Government was then persuaded to grant sufficient funds to AMSAT to build a replacement satellite. Karl appears to be not only a technical genius but also a political and financial wizard! The new satellite, improved by the addition of a Mode L transponder (23 cm up, 70 cm down) was launched in June 1983 by a more successful Ariane. However a bump just after separation upset the attitude, bent an antenna, and restricted the supply of fuel for manoeuvring. The inclination eventually achieved was only 26 degrees rather than the wanted 57, and the orbit was more elliptical than desired.

INSURANCE

Learning from the disastrous first attempt, the second satellite was covered by very comprehensive insurance, one clause of which defined the mission as unsuccessful if the inclination was less than 30 degrees. The payout from this has permitted construction of a further Phase 3 satellite to proceed. In the meantime it has been possible to manoeuvre OSCAR 10 into the best possible attitude consistent with its low inclination angle, and communication through it has been readily possible for over a year. However, its sensitivity is about 20 dB down on specification for the Mode L transponder and power will be restricted by frequent long eclipses later this year as the orbit causes the satellite to be in the earth's shadow for up to 3 hours at a time. The attitude needs to be changed twice a year to minimise its effect on solar illumination; and the elliptic orbit involves passage through the earth's radiation belts twice a year, which will shorten the useful life of much of the electronics, particularly the computer memories.

VIDEO

Karl's presentation was supported by a 45 minute video-cassette of the OSCAR 10 story. This was mainly produced by Werner Haas DJ5KQ, and covered all aspects from concept to launch in a most informative style. Several interesting items were gleaned here; OSCAR 10 is spin-stabilised at 35 RPM; its development and testing involved the University of Marburg, the Max Planck Institute, NASA and the ESA Kourou complex; the Ariane take-off thrust is 2445 kilonewtons and its mass 207 tonnes (from which may be deduced an initial acceleration of 1.2 G, less the earth's 1.0 G, so only 0.2 G or 2 metres per second at lift-off); the payload is 2 tonnes and the vehicle takes 14 minutes to reach the altitude where the payloads separate and are left to their own devices. Video coverage of the Kourou installation and of the actual lift-off was especially interesting.

FUTURE

An improved version of the present satellite is intended, hopefully with an overall 10 dB improvement in transponder gain, so that the necessary ground ERP will be possible from mobile antennas. There will also be a digital communication experimental system for the packet radio buffs.

The next generation (Phase 4) will involve higher gain antennas, 250 watt transponders, and larger solar cell panels to provide the DC power. One most intriguing suggestion is the use of electrically heated water vapour jets for manoeuvring. Water is of course much cheaper than hydrazine and

Photographs courtesy Gil Sones VK3AUI.

Karl explains the operations of a pocket computer to gain OSCAR 10 information.

other exotic fuels, and can be carried on a manned craft such as the Shuttle. One might envisage a low-level Shuttle launch, the satellite then propelling itself into a much higher orbit, taking weeks if necessary, steaming outwards into space!

QUESTIONS

At the conclusion of Karl's address there were several questions from the floor. These involved the expected life of OSCAR 10, access by mobile stations, commercial support, launch vehicles other than Ariane, possibility of amateur geostationary orbits, ease of access, polarisation, and launch timing for the 10 dB improved version.

In replying, Karl said that at least 3 years was expected of OSCAR 10 (in spite of some experts who said it would not last 2 days, and have already been proved completely wrong!). Access might be possible to later satellites by hand-held SSB sets. Even now many signals into OSCAR 10 are 20 dB stronger than needed, and users must be educated to use the minimum necessary power.

Commercial support is not great, as there is little commonality of aims between the professionals, who require high reliability no matter what it costs, and amateurs, who require a limited capability on a shoestring budget. Ariane remains the most appropriate launch vehicle, but the proposed water vapour propulsion may make a low-level Shuttle launch possible, although expensive. The Amateur Service could perhaps afford one geostationary satellite, but the three or four necessary to cover the whole world would probably be beyond our means.

It was agreed that a satellite system easily accessible even to hand-helds might raise serious problems, although the American philosophy is towards this aim. No change is proposed to the present circular polarisation sense; and the next improved OSCAR may be launched in 1989 or 1990.

In conclusion, VK3ADW thanked DJ4ZC for his notable contributions to the amateur satellite service and his willingness to address us, and presented him with several appropriate momentos of his visit, including an embossed leather binder containing some recent issues of AR.

AR

EXPANSION OF SBS TV INTO UHF

As previously announced the channel 0 transmissions for SBS TV will terminate on 5th January 1986. All future expansion of this service will be on UHF. The use of channel 0 however remains for other TV services.

The UHF SBS channels to be used include:

Ch 28	*Sydney — Canberra and Melbourne and planned for Adelaide and Brisbane July 1985 Perth and Hobart in January 1986 and Darwin late 1986*
Ch 43	*Adelaide foothills*
Ch 44	*North Wollongong in August 1985*
Ch 45	*Newcastle in July 1985*
Ch 58	*Kings Cross — Goulburn — Cooma — Tuggerong in VK1 and Warburton and Marysville in VK3*
Ch 59	*Wollongong in July 1985*
Ch 61	*Gold Coast.*

Contributed by Tim Mills VK2ZTM.

AR

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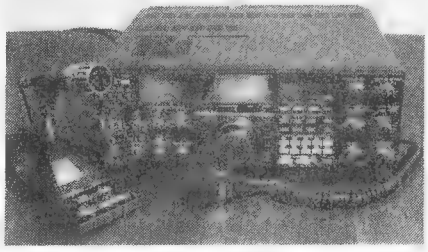

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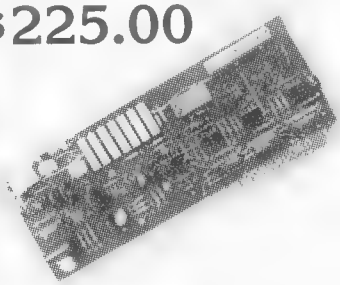

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- ★ *Auto CQ, ID, QTH, etc, etc.*
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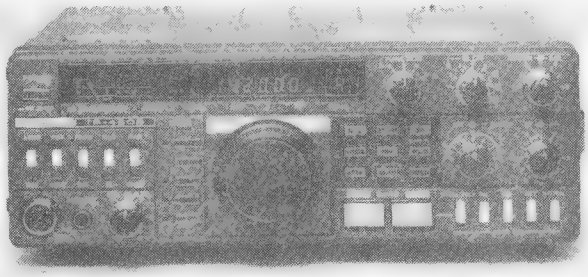

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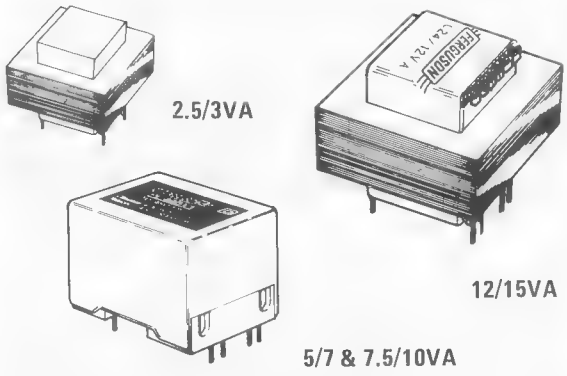

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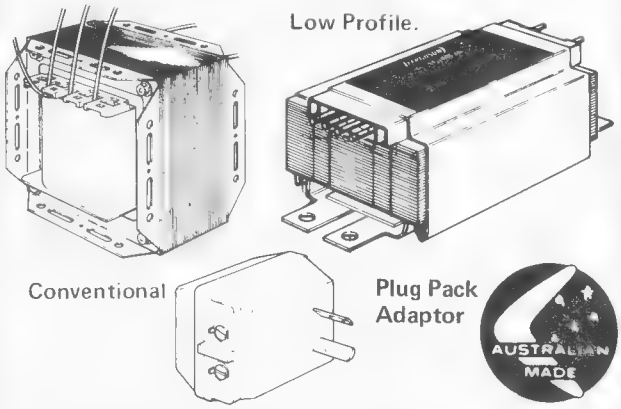

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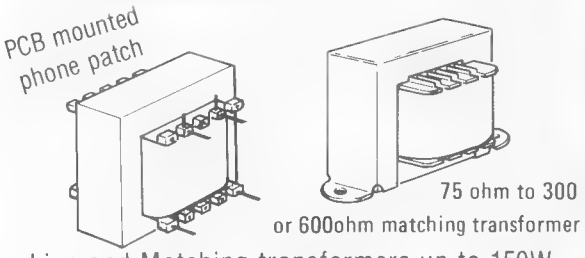

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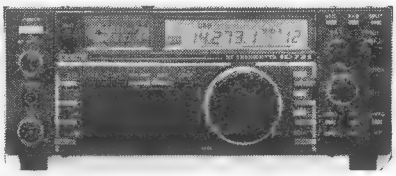

ICOM IC-731

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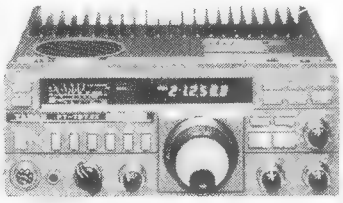

YAESU FT-757GX

HF SSB/CW/AM/FM transceiver with 100W RF o/p. 160-10m tx, 0.5-30MHz rx. 8ch memory with memory scan and PMS. Selectivity width and shift controls. AM filter included. Speech processor. Effective N.B.

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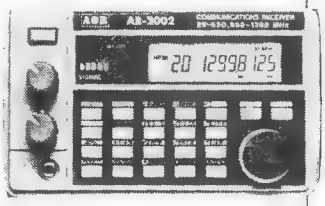

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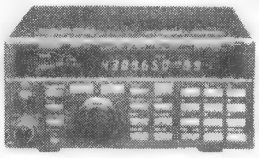

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ICOM IC-R71 Communications Receiver $950, AC/DC.
YAESU FT-709R 70cm h/h, available on order, $449 w/FNB-4.
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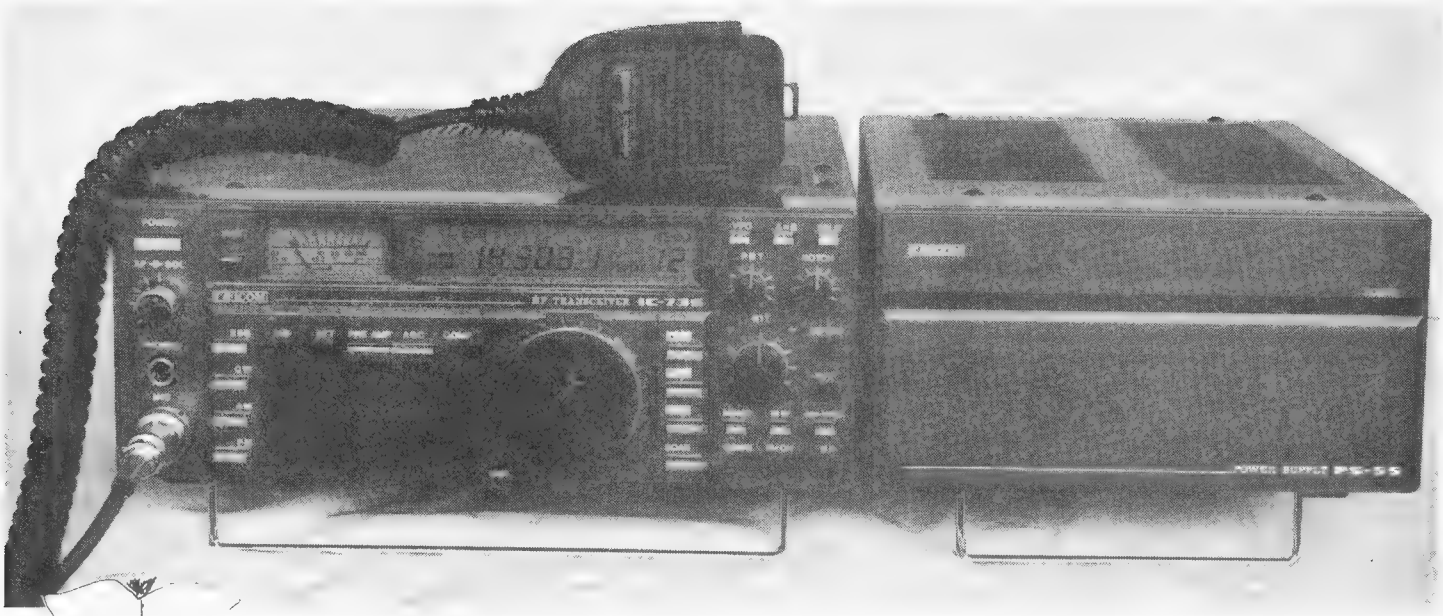
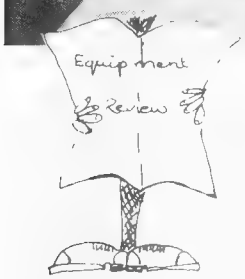




EQUIPMENT REVIEW

Ron Cook VK3AFW
TECHNICAL EDITOR

ICOM IC-735 ALL MODE HF TRANSCEIVER

The IC-735 replaces the well known Icom IC-730. It seems that the days of transceivers that only cover the amateur bands on receive have long gone and the 735 therefore has a general coverage receiver. The 730 appeared on the Australian market in early 1982 and was reviewed in the April 1982 issue of Amateur Radio. It has continued in production ever since and I believe that there has been a steady demand for it. It has been regularly advertised in American magazines but it is quite a while since I have seen a local advertisement for it.

In its basic concept, the 735 fills the same role as the 730 with a compact transceiver for portable or mobile operation, fully solid state no tune up design with amateur band coverage from 160 to 10 metres and operates from a 13.8 V DC source. It is packaged in a cabinet of identical dimensions to the 730, 94mm high, 241mm wide and 239mm deep (less projections) but weighs less, 5.05kg as against 6.4kg for the older model.

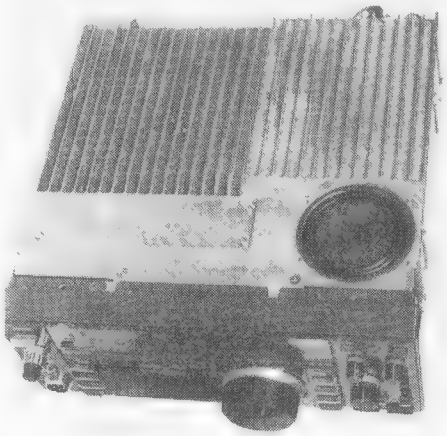
The big difference is what is inside the cabinet. First is the general coverage receiver. This covers from 100kHz to 30 MHz. Tuning is continuous over this range with the choice of stepping in 1 MHz segments or in amateur band segments. Add to this an all mode capability for AM, FM, SSB and CW and you can see we have a very complete package. All controls are on the front panel.

If you refer to the review of the 730, you will see there were a few complaints about the accessibility of controls under the top hatch. This hatch has disappeared and all of the lesser used controls are on the front panel behind a drop down semi-transparent plastic panel. Very neat. Also commented on was the matching AC power supply in fact did not match. Instead of presenting a smooth line up, it looked more like the side elevation of a camel train. But no more, Icom have produced a power supply, the PS-55, which matches the IC-735 in both size and colour. An automatic antenna tuner is also available in matching format.

Frequency, mode, VFO and memory information are presented by means of a large LCD display. To my knowledge, this is a first on an HF transceiver, but several excellent LCD displays have been used on VHF FM transceivers. In more detail, the display shows the following: *frequency display to 100Hz resolution, VFO A or B, mode of operation AM, FM, USB, LSB or FM, transmit or receive status, scan mode, memory channel selected and split frequency operation.* It is illuminated in a soft translucent green. The 'S' meter is also illuminated in a soft green but I found it lacking in contrast. Twelve memory channels are provided. Both mode and frequency information can be stored and each can be individually tuned across the full 30 MHz tuning range. In effect this gives 14 independant VFOs. All VFO and memory information is retained when the power supply is removed by use of an internal lithium battery.

The 735 has an excellent notch filter that can be used with any mode, including AM, and is quite capable of taking out the carrier on a local broadcast station. Other performance information is included in the test section of this review.

As mentioned earlier, the 735 is housed in much the same cabinet as the 730, however removing the top half of the cabinet reveals that the appearance is only skin deep. Underneath is a cast heat sink that takes up the entire depth of the transceiver. A miniature centrifugal fan mounted towards the front of the heat sink draws air in from the rear. The fan operates as soon as the transmitter is keyed and shifts to a higher speed after a few minutes operation. It is fairly quiet but to my ear operates at an annoying pitch.



The IC-735 with the top cover removed to reveal the heatsink and speaker.

Icom have sped up the tuning rate slightly from previous models as the 735 covers 2.5kHz per tuning knob revolution as against 2kHz on the older models. Turning the knob faster than about one revolution per second increases this to 5kHz per turn. One kHz stepping can be switch selected which gives a rate of 100kHz per knob revolution. An input to enable the 735 to be remote controlled by a computer is included called the 'Advanced Remote Control System'.

It is claimed that frequency, mode, VFO A/B selection and memory selection can be controlled by the computer when an appropriate interface is used. There is no information on what this is. It is also stated that the serial port uses a standard 1200 Baud data rate.

Let's look a little closer at the scanning and memory system. The 735 has twelve memories which store both frequency and mode. The memories are fully tunable, it is not necessary to transfer them to one of the VFOs, just select the required memory and tune up or down in the usual way. The memories are selected by first pushing the 'MEMO' button and then selecting the required channel with the memory up/down buttons. Unfortunately memories cannot be changed by using the up/down buttons on the microphone. This only causes the frequency of the memory to change. Pushing the scan button starts the memory scan with a hold time on each of about two seconds. It is possible to scan the complete memories or scan in any selected mode. Memories 11 and 12 can be used to set the limits of a programmed band scan. In general the scanning works quite well and certainly very much better than the scanning in the IC-745.

The CW operator has been given quite a bit of thought by the designers. Provision has been made

Front panel of the unit with the 'hatch' open to display all the controls.

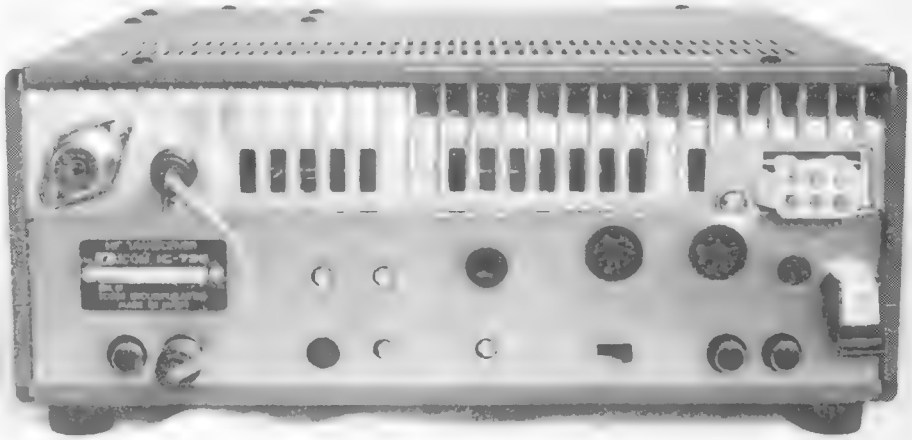
for the optional inclusion of an electronic keyer unit and full break-in keying is built-in. There are no relays, all switching being solid state. This makes full QSK possible and also gives smooth and silent VOX operation on SSB.

A sharp CW filter is a standard fitting with switching to use either this or the normal SSB filter for CW operation. Squelch is useable with all modes although its main purpose is with the FM mode. I feel that one of the few mistakes Icom made was to gang this control with the audio gain. The more logical RF gain is hidden with the lesser used set and forget controls behind the flip down plastic panel. These two should be reversed.

Some of the other handy additional features include: *receiver tone control, adjustment for dial light brilliance, power output switch to give either the normal 100 watts or 50 watts (a handy feature for novice operators), CW side tone volume control, 25kHz marker, scan timer switch and scan speed selector.* All of these controls are not available from the front panel, some like the tone and sidetone adjustments are accessible through holes in the cabinet while others require the top or bottom of the cabinet to be removed.

However I am leaving the best (I think) to last. For the first time since the IC-701, the 735 stays on the same frequency when modes are changed. This is something that I have commented on in each of my Icom reviews over the years. Now if only the R-71 had this same feature.

Well, with all of that, what should the 735 have? Only one thing that I can see; a handle! Here it is, a perfect portable transceiver that just invites you to pick it up and travel, but it takes two hands. The 751 and 745 both have a handle, the 735 should have one as well.



TECHNICAL DETAILS

Unfortunately the only technical information supplied with the review transceiver was a rather hard-to-read photo copy of a block diagram. With the aid of a new pair of bi-focals, the following was discerned. Antenna input to the receiver is via the attenuator and a high pass filter to the eight band pass filters. The high pass filter is by-passed for broadcast and long wave reception. The preamp is now diode switched. The 730 preamp was relay switched and was inclined to trouble with intermittent contacts. Push/pull 2SK125s are used in both the preamp and the first mixer. The conversion set up is 70.45 MHz first IF to 9.01 MHz where the main filters are located. The notch filter is also at this frequency. Third IF is at 455 kHz with an additional limiter and detector for FM reception. Band pass tuning is at 9.01 MHz and uses a VXO to shift this IF frequency in relation to the 455kHz IF.

For transmit, carrier generation is at 9.01 MHz. Two carrier oscillator crystals are employed, one for AM, FM and USB, the other for LSB, CW receive and CW transmit. The actual frequencies being slightly shifted to suit.

The PLL unit supplies all of the conversion heterodyne frequencies and is controlled by the CPU. This is powered by a lithium battery which has an estimated life of five years, therefore all memories and VFO frequencies are retained when all DC has been removed from the transceiver.

Transmitter output is via six relay switched low pass filters.

THE IC-745 ON TEST

The following test equipment was used to produce our figures on the IC-745. Yaesu YP-150 terminating RF watt meter, Drake W-4 through-line watt meter, Kenwood SM-220 monitor scope, AWA F242A noise and distortion meter, Daven terminating audio output meter and a Marconi TF995A/5 RF signal generator.

Frequency Stability

In common with most modern equipment, the IC-745 is very stable. With synthesised VFOs drift that would have passed as acceptable a few years ago is now non-existent. Tested several times over three days, drift did not exceed 50Hz on the several frequencies checked.

Power Output

Power output was measured with the transceiver running from the matching PS-55 power supply. Under full CW output this was able to supply 13.8 volts to the 745. Power was measured under CW conditions, the PEP output was measured on the monitor scope and two tone audio was fed into the microphone socket with the resultant RF out measured on the watt meter and then multiplied by two to give PEP. The results were as follows:

BAND	CW OUTPUT	PEP OUTPUT From Scope	Two tone output by 2 to give PEP
1.8MHz	124 W	130 W	120 W
3.5MHz	124 W	130 W	120 W
7.0MHz	124 W	130 W	120 W
10.0MHz	124 W	130 W	120 W
14.0MHz	123 W	130 W	118 W
18.0MHz	123 W	130 W	118 W
21.0MHz	124 W	130 W	120 W
24.5MHz	124 W	130 W	122 W
28.5MHz	124 W	130 W	122 W

The response from band to band is excellent. The transceiver ran reasonably cool during these tests. Like its predecessor the IC-730, the cooling fan comes on as soon as the transmitter is keyed and stays on for a short time after transmission has stopped.

The scope pattern was clean even with the audio well up. The power control behind the transparent panel allowed the power to be varied from full output down to about six watts. Handy for QRP operation. Subjective tests of the transmitted audio quality was carried out in the three modes. SSB was rated as good. The review transceiver was supplied with an HM-12 hand microphone. An SM6 desk microphone was also tried. Opinion was that the SM6 had a more balanced response but both microphones sounded rather restricted. Transmitted quality in the AM and FM modes was rated as fair. Both had a slightly edgey quality and were not comparable to other equipment tested recently. At this time, there is no way of knowing if this is peculiar to this particular transceiver.

Receiver Tests

The extention speaker output was connected to the terminating audio power meter and the noise and distortion meter. The power meter was set to 8 ohms. Residual noise with the audio gain set at zero was 58.5dBm. This is quite a reasonable figure and somewhat better than previous Icom transceivers tested. Audio power output and distortion were next checked.

Output power	Distortion
.5 watts	1%
1.5 watts	1.1%
2.0 watts	2.5%
3.8 watts	40%

These figures show the combined distortion from the product detector and the audio amplifier is very low up to the overload point. As a point of interest, I did this same test on an old FT-101 and found that the distortion was around 10 percent at less than 1 watt output. There is no doubt that modern transceivers sound very much better than their older relatives.

The received audio response in LSB mode was checked by tuning across the output of a crystal calibrator. The results were as follows:

100	200	300	400	1k	1.5k
10	-3	−1	0	0	−1
2.0k	2.2k	2.5k	2.7k	3.0k	
−2.5	−3.5	−5	−7	−26dB	

This is very smooth but could be shifted a bit further away from the filter to give a slightly better high frequency.

The AM receive frequency response was checked with the following results:

40	50	75	100	200	400
−9	−6	−4	−3	-1	0
1kHz	1.5	2.0	2.5	3.0	3.5
0	−1	−1	−2	−2.5	−5
4.0					
-8dB					

These are excellent figures for any AM receiver. Feeding a good quality external speaker the results are very pleasing. Add to this the excellent tuning characteristics and relative lack of clicking as the synthesiser changes frequency produces very good AM results. The SSB filter can be selected for AM reception if required by depressing the narrow button.

The CW filter is included as standard in the 735. The response was checked with the following results:

200	300	400	600	800	1k
−20	−15	−10	0	−10	−20dB

The band pass tuning was next measured. With the control central, the SSB response is normal. In the USB mode turning the control to the left reduced the high frequency response while turning right reduces the low frequency response. At 1.5k the selectivity could be adjusted to give −25dB. The same −25dB response could be obtained at 800Hz. It should be noted that you can have either one or the other, not both together. The action of this control is quite useful but not as effective as the Kenwood system that allows independant adjustment of both high and low frequencies.

Receiver sensitivity and 'S' meter calibration were then checked. Signal to noise ratio was tested at 14.2 MHz. At 1uV input the preamp switched out the S/N was 18.5dB. With the preamp in, it was 23dB. At 28.5 MHz 1uV S/N was 11dB preamp out and 16dB preamp in.

'S' meter calibration was measured with the preamp in, and even then it took a signal of 2uV to reach S1. From there up the following results were obtained:

S Meter Reading	Signal input	dB increase
1	2uV	
2	2.5uV	2dB
3	3.1uV	2dB
4	4uV	2dB
5	5uV	2dB
6	8uV	4dB
7	10uV	2dB
8	10.6uV	4dB
9	30uV	6dB
9+10dB	80uV	8dB
9+20dB	300uV	10dB
9+30dB	600uV	10dB

The meter actually reads to S9+60dB but signal input readings were not measured up to this level, but for interest a 10kW broadcast four kilometres away reaches this (preamp out).

With the preamp out, the S meter was very sluggish but the receiver performance was quite acceptable. The preamp has a measured gain of 10dB at 14.2 MHz and the 20dB attenuator was checked at exactly that figure.

The AGC performance was next to be measured. With the preamp in, an increase of signal input from 1uV to 10uV resulted in a 2dB audio output increase and then from there up to the limit of the RF generator, no further increase in audio resulted. With the preamp out, the 1uV to 10uV increase was 14dB, then no further increase in output level from there.

AGC decay time from an S9 signal was 5 seconds with AGC slow and 1 second with AGC fast.

Receiver front end performance was checked for adjacent strong signal handling. A signal was injected into the antenna socket 3kHz off frequency and noise increase measured. With 100uV (equal to about S9+10dB) there was 0dB, with 1mV 1.5dB and with 10mV 15dB. An excellent result.

The antenna input was terminated with a 50 ohm resistive load and the receiver tuned over its entire range. All spurious signals were noted. There were twenty eight but of these only three were of any consequence. These were 23.039 MHz which reached S4, 14.471 MHz, S1 and 9.011 MHz, S1. All others were below an equivalent level of .25uV.

To conclude our tests, the FM receive performance was checked. The tests were conducted on 28.5 MHz. At 1uV input, modulated at 1kHz to give 4kHz deviation, the signal to noise ratio was 6dB. It took a signal input of 4uV to open the squelch. As the specified squelch sensitivity is .3uV something seems to have gone wrong here.

INSTRUCTION MANUAL

Our review transceiver was supplied with a draft copy only. It did appear complete but only time will tell what appears in the manual supplied with equipment sold locally.

CONCLUSIONS

It is interesting to look at the 735 in relation to the older 745. In many ways, it out performs the 745. Broadcast band and long wave reception is vastly better, both from a quality and sensitivity point of view. Memory scan now works in a logical way (see comments on memory scan in the 745 review). There are very few points of criticism with the 735. It is a very versatile little transceiver. If only it had a handle! Perhaps a few comments about the matching PS-55 power supply might be of interest. This worked well throughout the tests with the exception of a slight amount of mechanical hum. But perhaps Icom might consider a few improvements. Firstly, there is no provision to supply DC to anything other than the 735 transceiver. Once you have invested in a good regulated supply it is handy to use it to supply a two metre FM transceiver or some other piece of station equipment. I use a PS-15 which I have modified to give auxiliary DC output and front panel AC switching so that it can be used with all units in the shack. Last point, what about a speaker in the front panel of the PS-55. There is room for one.

Thanks to Icom Australia who kindly supplied this review transceiver.

EVALUATION AND ON AIR TEST OF THE ICOM IC-735 HF TRANSCEIVER — Serial No 0021

APPEARANCE

Packaging
*** Carton with foam inserts, but not up to other Icom equipment.*
Size
*** About as small as they come.*
Weight
*** Slightly less than its predecessor.*
External finish
*** Clean appearance and well finished.*
Construction quality
** Good quality boards and wiring. Reasonable accessibility.*

FRONT PANEL

Location of controls
*** Top marks. Some are hard to get at but excellent layout for front panel size.*
Size of knobs
** Small front panel means small controls, but mostly satisfactory.*
Labelling
*** Very clear.*
Status Indicators
*** New LCD display very comprehensive, but no indicators for many functions.*

VFO ACTION
Tuning Knob
**** Smooth action. Adjustable drag.*
Tuning Rate
*** Better than previous Icoms, but still a bit slow.*
Digital readout
**** New LCD display very good. 100Hz resolution spot on frequency.*
VFO stability
**** Less than 100Hz total drift.*

RECEIVER OPERATION
Memories
**** 12 tunable memories. Very useable memory scan also select ed mode memory scan.*
Band pass tune
*** Quite useful.*
Notch Filter
**** Works well for all modes.*
Spurious responses
**** Quite a few, but mostly very low level (see test section).*
'S' meter
*** OK with preamp in, sluggish with it out.*
AGC performance
**** Good action. No pumping detected.*
Signal handling
***** No cross mod heard except when noise blanker selected with maximum blanking.*
RIT
*** +/- 900Hz. No XIT. No frequency indication. Leaves you in the dark.*
Sensitivity
***** Excellent. See test section.*
Preamp/attenuator
***** Independently controlled. Gives good choice.*
RF gain
** Works well. Difficult to get at.*

NOISE BLANKER
Woodpecker
**** Excellent blanking, but introduces cross modulation.*
Ignition and general electrical noise
*** Works well, but level adjustment critical to avoid cross modulation.*

QUALITY OF RECEIVED AUDIO
Internal speaker
*** Very small speaker but well baffled giving quite fair quality.*
External speaker
NA Appears that no matching speaker available. Very good on my usual station speaker.
AM received quality
***** Special mention, it's excellent.*
Headphone output
**** Stereo phones compatible. Good level.*
Cooling fan noise
***** Does not operate in receive mode except after long transmission.*

TRANSMIT OPERATION
CW and PEP output
***** Excellent — See test section.*
Audio response
*** Good on SSB, fair on AM and FM.*
ALC action
**** Very good, no flat topping.*
Compressor
*** Audio processor only but quite effective if not pushed too hard.*
Metering
*** ALC, relative output and SWR.*
Relay noise
***** None. Solid state switching.*
VOX operation
***** Excellent and no clattering relays. Use it you will like it.*
CW operation
**** Full QSK. CW filter good sidetone.*
Cooling
*** Runs quite cool. Fan operates continuously in transmit mode with audible sound.*

MANUAL
Owners Handbook
NA Only rough copy available at time of review.

Rating Code: Poor * Satisfactory ** Very Good *** Excellent ****

AR

75th Nostalgia

"THE NIGHTINGALE SINGS"

A TRIBUTE TO THE LATE BILL MOORE VK2HZ

Ted Gabriel VK4YG
PO Box 245, Ravenshoe Qld. 4872

I first met Bill Moore in a Japanese Prisoner of War camp in Batavia (Djakarta) in 1942, when thousands of Australians from the three services laid down their arms after fighting a bitter rearguard action to defend their country against the tide of war which had engulfed Malaya, Singapore and the Dutch East Indies.

Bill was a quiet, friendly man who had a cheery smile for everyone who met him.

What has this to do with nightingales you may ask? relax and I will explain.

Bill was an RAAF radar officer serving in Malaya and when Singapore fell he was evacuated to Java.

After the capitulation and while allied servicemen were being rounded up he quietly collected radio components from wrecked aircraft and other equipment and smuggled the parts into the camp in Batavia.

From these components, with typical amateur ingenuity, he constructed a receiver powered by torch batteries which could be easily dismantled for shifting from one camp to another.

It was this receiver that brought the war news to Australian POWs working on the notorious Burma-Thailand Railway of Death, it gave hope in the days of gloomy despair, and lifted the morale of those cut off from their homeland and loved ones.

Without doubt this man's skill and concern for his fellow man gave many the will to survive this terrible ordeal.

"A Nightingale Sang in Berkeley Square" was a wartime tune made popular by Glenn Miller and his orchestra and the phrase; the "Nightingale Sings" was chosen as a code name for the extremely dangerous task of receiving the news from the BBC in India or Radio Australia and passing it on to the troops.

Since the Japanese use the word "newsu" to mean news this word was strictly taboo as were 'radio' or 'wireless'.

Accordingly the code word; "The Nightingale Sings" meant that there would be news before 'lights out' that evening.

The operator, Corporal Arch Caswell, RAAF, who was later awarded the British Empire Medal for his work, would retire under his mosquito net, produce the earphone from its hiding place, switch on the receiver and listen to the news.

While he was doing this there would be several unobtrusive "cockatoos" on watch to see that no guards approached the hut undetected.

Nothing was ever written down, the operator memorised what he heard and then sought out a certain officer who also memorised what he heard and then informed the Australian Senior Officer.

After the evening meal all officers in charge of working parties were called to the CO's quarters to receive orders for the next day and were then told the news.

The officers then went to their groups to prepare work lists for the next day and passed on the "Nightingale's Song" to their men.

Very strict discipline was necessary to protect the lives of those engaged in this dangerous operation, all men were to hear the news and then "forget it," anyone heard discussing it later would be immediately put on a charge and denied access for a long time.

No Australians were caught but an English officer found with a secret radio in one camp was beaten to death — those responsible were later executed after a War Crimes Trial.

Moving from one camp to another meant that the receiver had to be dismantled and the parts distributed amongst several people and concealed in such a way as to evade searches by the Japanese.

Some very ingenious methods were used, parts were concealed in musical instruments, in bags of rice, in hollowed out timber of boxes, in shoes or boots, while the torch batteries were concealed in bamboo carrying poles.

One particularly crafty move was made by concealing parts in the Japanese officer's telephone equipment which was not searched and which was maintained by Australian signals men since neither the officers' staff or the Japanese Military Police, the "Kempei Tai", understood much about this gear.

Considerable discretion had to be exercised when some Japanese, trying to improve their knowledge of English, would discuss items of news published in their propaganda newspaper with the prisoners.

After the midget submarine raid in Sydney Harbour several of us were accosted by a Japanese triumphantly waving his newspaper and saying; *"Nippon submarine torpedo centre pylon of Sydney Harbour Bridge!"*

After several minutes of feigned amazement and careful discussion one of our group produced an old postcard of the famous bridge and showing it to the guard said, *But as you can see there is no centre pylon under the Sydney Harbour Bridge".*

"Ah so", he replied, *"Nippon Submarine captain No 1 shot!"* (you could not win!)

Farewell Bill Moore VK2HZ, the man who made it possible, the Australian Servicemen who heard the "Nightingale's Song" — salute you.

AR

PHOTOGRAPHIC WINNER 1984-85

The winner of the $100 worth of Agfa film and/or video tapes was Sam Voron VK2BVS for his collection of photographs on page 21, April AR

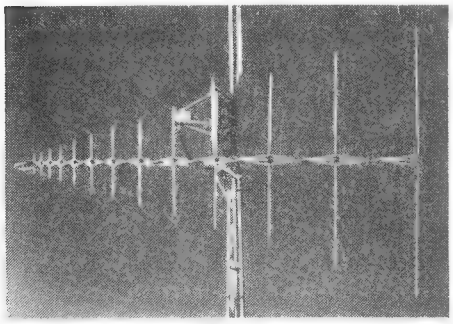
NEW LITERATURE

CMOS DAC APPLICATIONS GUIDE—Free—64 Pages, is a guide to explain the use of CMOS D/A converters. The applications guide thoroughly covers theory, operation, and applications in greater detail than manufacturers' data sheets. The guide discusses basic CMOS DAC circuit design and function, as well as many of their specification such as output leakage current, digital-to-analog switching glitches, power supply rejection, and more.

The guide outlines considerations for using the devices in the conventional current-steering mode, in unipolar and bipolar modes, and how the correct voltage reference and precision output amplifier should be selected. Single-supply operation in the voltage-swtiching mode is also discussed. Following a chapter discussing the logic interface, twenty-five applications are described, from the most basic multiplier/divider to microprocessor interfaces with a 12-bit buffered multiplying DAC, and a microcontroller-to-12-bit DAC interface.

For further information contact Parameters Pty Ltd, Sydney: 41 Herbert St., Artarmon 2064 Phone (02) 439 3288. Melbourne: 53 Governor Rd., Mordialloc 3195 Phone (03) 580 7444.

AR



BROADBAND DIRECTIONAL VHF-UHF BEAMS

GFS Electronic Imports have on the market a range of high gain broadband VHF/UHF beam antennas designed to suit the requirements of a number of different applications where broadband operation and gain is required.

Known as the LOG-SP and LOG-S respectively, the two antennas in the range cover the needs of most users. The LOG-SP is a 13 element Log Periodic type beam with a gain of 11.5 dBi and a bandwidth of 65 to 520 MHz. Its power holding capability is 200 watts RMS over that bandwidth. Length of the LOG-SP's boom is 3.03 metres.

The smaller LOG-S is designed to cover the frequency range of 100 to 520 MHz and has just 9 elements. It is designed primarily for receive only applications although, with a different balun fitted, it can be made to handle 200 watts RMS on transmit. Gain of the LOG-S is 9.5 dBi and its boom length is 1.02 metres.

One very common application for the LOG-S is its use in conjunction with programmable scanning receivers to provide these units with greater overall performance.

Price of the LOG-SP is $194 plus $14 freight while the LOG-S is $136 plus $14 freight.

For further information on these antennas contact the distributors: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic, 3132, Phone: (03) 873 3777.

AR

NOW USED BY RESCUE SQUAD

Microcomm's model SX-155 programmable 160 memory HF/VHF/UHF scanner is now in use by one of Southern Victoria's busiest rescue organisations, the Southern Peninsula Rescue Squad, located at Sorrento, 60 kilometres south of Melbourne, on the Mornington Peninsula.

From December through to February the Mornington Peninsula's population is multiplied many times by the influx of summer holiday makers. It offers both the relatively peaceful waters of Port Phillip Bay as well as the somewhat more turbulent surf beaches of Bass Strait.

AR SHOWCASE

During the summer holiday period the squad, operated entirely by volunteers, is kept continuously busy by incidents which range from boating mishaps, car accidents, swimmers caught in trouble to rescueing people trapped on cliffs. The squads 25 members average a total of around 130 rescues each year. Their equipment includes a Bell 206 Helicopter, 2 boats, a four wheel drive vehicle as well as other pieces of ancillary equipment such as the jaws of life.

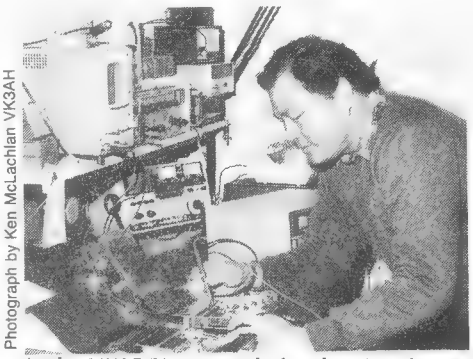
The squad must liaise with many other services including the Police, SES, Coast guards, Fire Brigade and Surf Lifesaving clubs.

This is particularly the case while they are on the move. Consequently they found themselves with the requirement for a programmable pocket scanning receiver with both a large frequency range and high number of memory channels. The Microcomm SX-155 fitted this area quite well, particularly because of its 160 memories and HF/VHF/UHF frequency coverage. It also offered rechargable batteries, high sensitivity and heavy duty extruded aluminium construction.

Shown in the Squad's Bell 206 Jetranger Helicopter, VH-BLD, are the pilot Bruce Taylor, and communications officer Darrell Williams. Both Bruce and Darrell have been with the squad since it started in 1970 when it operated an old Bell 47J Helicopter.

For further details on the Microcomm SX-155 Pocket scanning receiver contact: GFS Electronic Imports, 17 McKeon Road, Mitcham, Vic, 3132, Phone (03) 873 3777.

AR



Photograph by Ken McLachlan VK3AH

Andy VK3DPJ at work in the Am-Comm workshop, 69 Canterbury Road, East Camberwell.

EXTRA SERVICE FACILITIES

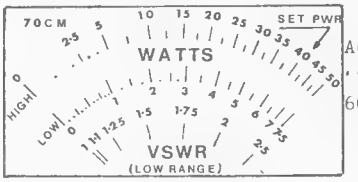
Am-Comm has expanded its service facilities. Andy Chan VK3DPJ has been appointed Service Manager. His experience spans over 20 years, dealing with all facets of radio communications equipment, including repeaters and marine radars. Andy has held positions extensively in the Pacific region.

The current service facilities at Am-Comm Electronics is fully equipped to cover all Icom, Kenwood and Yaesu customer needs. AR

MICROWAVE DEVELOPMENTS

6 NETLEY ROAD, MOUNT BARKER.SA 5251.
(P.O.BOX 274). 'PH. (08) 391 1092.

POWER/VSWR METERS. Our high accuracy meters (reviewed p.23 A.R. July '83) are still under $120, including 20% S/T & post. Models for 70,50 & 23cm.



Actual size is 60x53 cm.

OUR LONG LOOP YAGI is the standard compact, high gain antenna for 23cm. Soldered copper construction single, twin or quad form, supplied with splitter and mounting frame, Priced from $64.80 inc. 20% S/T. 50cm & 1.7GHz versions available.

WAVEGUIDE TUBE & FLANGES WG14-WG20. stocked. Bends, twists, flex to order.

GUNN & MIXER DIODES in stock at low prices. Some cheap Gunn available.

OUR 3cm TRANSCEIVER UNIT @ $125 (A.R.Nov.83), used with a Tandy FM Tuner 12-1350B and a simple power supply/modulator unit will get you on 3cm in a few hours.

Now developing Mode L/1296 gear.
73 de VK5ZO (Des Clift)

AR85

Travelaw's Electronics Tours

TRAVELAW

Following the highly successful Electronics Tours of Japan in October 1984 and May 1985, Paul Rodenhuis VK2AHB announces the new **EUROPEAN ELECTRONICS TOUR!**

Departing 21 June 1986 for a four week tour of France, Italy, Switzerland, Germany, Holland and UK with the following highlights:—

1 Visit the DARC Ham Fair in Friedrichschafen.
2 Factory visits to Siemens, Blaupunkt, Marconi Plessy and BBC.
3 Touring in air conditioned coach, staying in First Class, centrally located hotels.
4 All breakfasts and some dinners included.

The cost of this fantastic, specially planned tour is a very reasonable $4995 per person.

For more information write NOW to:—

Paul Rodenhuis VK2AHB,
Travelaw,
7th Fl, 130 Phillip St, Sydney 2000.
Phone (02) 233 8442, 231 2214.
TARB B1154.

STOP PRESS!! THERE ARE STILL SEATS AVAILABLE ON OUR OCTOBER TOUR TO JAPAN, DEPARTING 19 OCTOBER. WRITE NOW FOR INFORMATION.

AR85

ITU AND IARU

THE INTERNATIONAL TELECOMMUNICATIONS UNION

The ITU is an international organization, and is a specialised agency of the United Nations. It is, however, far older than the United Nations.

The Convention establishing the ITU defines its purposes as:

- to maintain and extend international co-operation for the improvement and rational use of telecommunication of all kinds;
- to promote the development of technical facilities and their most efficient operation with a view to improving the efficiency of telecommunications services, increasing their usefulness and making them, so far as possible, generally available to the public;
- to harmonise the actions of nations in the attainment of those common ends.

Much of the work of the ITU is undertaken through international conferences and meetings. The members of the Union meet at intervals of normally not less than five years at a Plenipotentiary Conference. This is the supreme authority of the ITU and lays down general policy. The Plenipotentiary Conference reviews the Union's work since the last conference and revises the Convention if this is considered necessary. It elects the members of the Union who are to serve on the Administrative Council, the Secretary-General and the Deputy Secretary-General as well as the members of the International Frequency Registration Board (IFRB).

The detailed regulatory work is carried out by administrative conferences. These may be either world administrative conferences or regional administrative conferences. The conferences review the Administrative Regulations which are the Telegraph Regulations, the Telephone Regulations and the Radio Regulations. These are the regulations which govern the international operation of the three modes of communication.

The Administrative Council is composed of 36 members of the Union (presently including Australia). The Council normally meets for about a month once a year at the ITU Headquarters in Geneva and at these formal sessions the Administrative Council acts for the Plenipotentiary Conference and generally supervises the administrative functions and co-ordinates the activities of the four permanent organs of the ITU and examines and approves the annual budget.

The four permanent organs are the General Secretariat, the IFRB and the two Consultative Committees, the CCIR (the International Radio Consultative Committee) and the CCITT (the International Telegraph and Telephone Consultative Committee). The two CCIs are the technical committees that issue recommendations for the guidance of the Union. The General Secretariat is responsible for the administrative arrangements at all conferences.

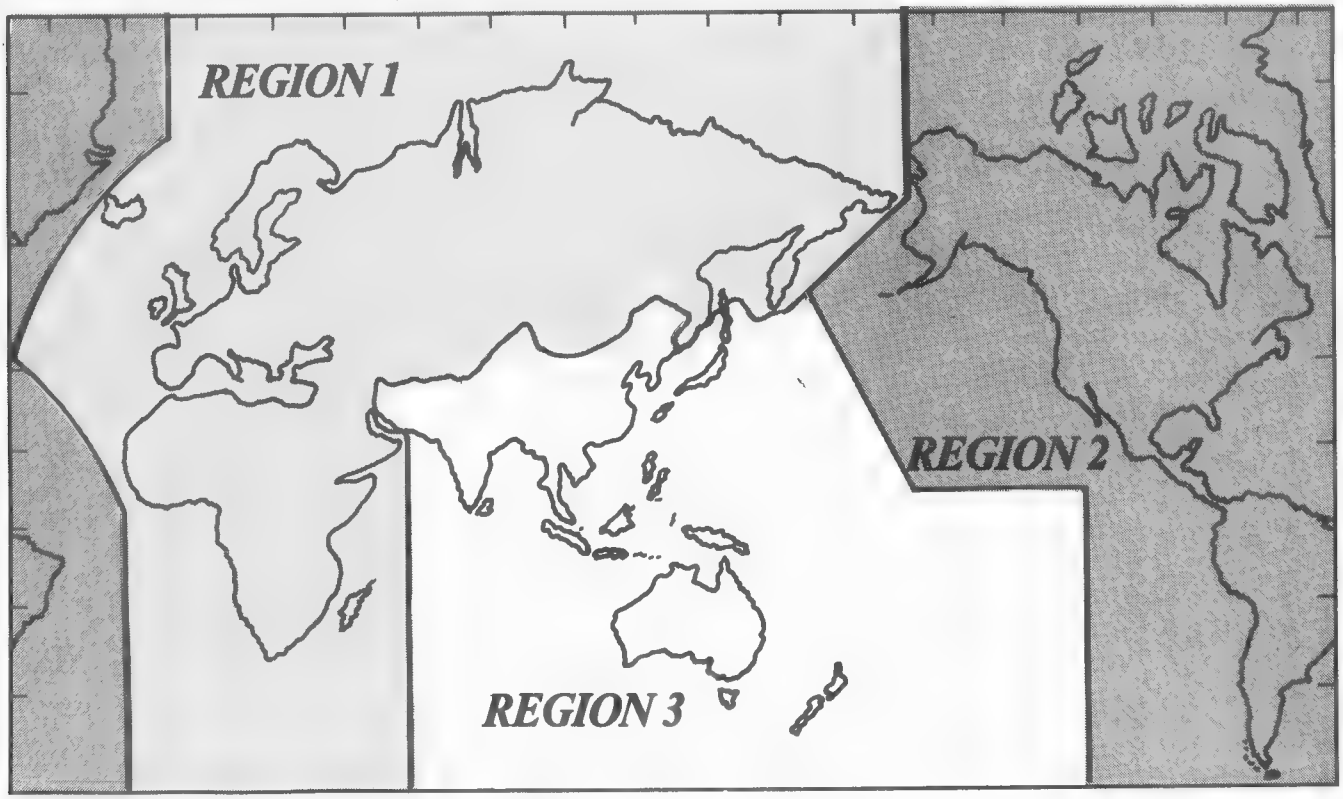
From September to December 1979 a World Administrative Radio Conference was held in Geneva. This conference made a general revision of the Radio Regulations including the International Frequency Table.

This was the first general revision in 20 years, though specialised Administrative Radio Conferences had been held in the intervening period.

INTERNATIONAL AMATEUR RADIO UNION

The amateur service has its own international organization to promote its worldwide growth and to represent its interests at the ITU if this should be necessary. This is the International Amateur Radio Union (IARU) which was founded in 1925. Its headquarters are located in the U.S.A. but it has separate representation in each ITU region (3). Its membership is made up of national societies rather than individuals, just as the members of the ITU are national administrations, not radio services or individuals.

In a similar way to that in which the ITU regulates and co-ordinates frequency allocations as a whole, the IARU regulates and co-ordinates amateur activities within individual amateur bands, albeit on a voluntary basis, so as to cater for the many interests within amateur radio.



EDUCATION

People wishing to enrol in Morse code or theory instruction classes are advised to check with their division of the WIA (see WIA directory in this book for addresses).

Each WIA division should be able to also recommend theory books helpful to those studying either for a Novice licence or the AOCP theory.

The Federal WIA Education Co-ordinator, Brenda Edmonds VK3KT handles national matters relating to the education field. Her role includes education policy matters in connection with DOC examination syllabuses and overall examination problems.

Other services provided include liaison with DOC on matters raised by WIA divisions and members, preparation of Trial Examination papers (Novice and AOCP), and distribution of sample CW examination tapes provided by DOC.

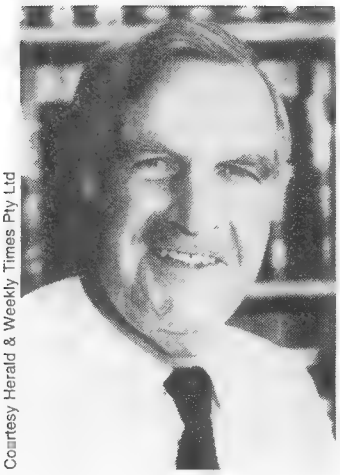
Mrs Edmonds can be reached via the WIA Executive Office, PO Box 300, Caulfield South Vic., 3162, direct via her callbook address, or on the Education Net each Thursday evening, 3.685MHz at 1130 UTC.

She would urgently like to hear from clubs and schools starting theory classes.

Brief History of the R

Maxwell Hull VK3ZS,

They shall grow not old a
Age shall not weary th
At the going down of t
We will re



Courtesy Herald & Weekly Times Pty Ltd

1981

Courtesy Victoria Police

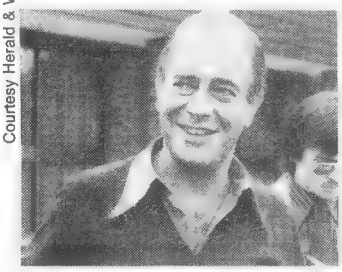
1964

Courtesy Herald & Weekly Times Pty Ltd

1963

Courtesy Herald & Weekly Times Pty Ltd

1976



Courtesy Herald & Weekly Times Pty Ltd

1969

Courtesy Broadcast Station 3AW

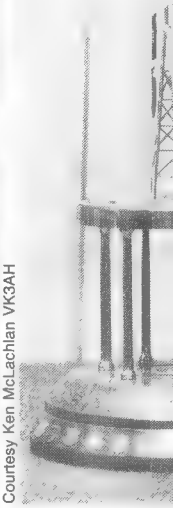
1973

Courtesy RAAF

1971

Courtesy Telecommunications Journal

1979



Courtesy Ken McLachlan VK3AH

Courtesy Herald & Weekly Times Pty Ltd

195

Courtesy Herald & Weekly Times Pty Ltd

198

These words were written by Robert Laurence Binyon, and would be known to most Australians from the Boar War to the present time. Born in England on the 10th August 1869, he was a poet, art critic and literary contributor to the "New York Times". He was the author of 20 books of poetry. In 1940 he held the position of Byron Professor of the University of Athens. He died on the 10th March 1943, at the age of 72 years.

The Second World War had come to an end in 1945 and the Federal Headquarters of the WIA, located in NSW from 1935 to 1938, had re-commenced operation in Victoria. Its post-war officers were R Marriott VK3SL (President), Alec H Clyne VK3VX (Federal Secretary) Tom D Hogan VK3HX (Treasurer), Charles Quin VK3WQ and A R Williams VK3WE.

The Executive's immediate objectives was to reorganise the Divisions of the Institute in each State, procure the release of all pre-war amateur frequency assignments and organise band-planning for future radio amateur operations in Australia.

The amateurs pre-war equipment had been sealed and lodged in local Post Office Stores (and other Government storage areas) for the duration. Under pressure from the Wireless Institute of Australia frequencies used by amateurs pre-war were slowly relinquished by the defence and maritime services and re-allocated by the Post Master General's Department for use by radio amateurs. The 'imprisoned' equipment was released for return to the owners and feverish activity ensued to 'get back on the air'.

The first post-war Federal Convention was held in Melbourne in 1946. At this Convention the NSW Division proposed that the Executive be authorised to organise a contest to perpetuate the names of those of the amateur ranks who had lost their lives in the service of their country, and that a trophy be provided bearing the names of these amateurs. Needless to say, the proposition gained the full support of all the divisions. The Federal Council approved of the name — Remembrance Day — for the contest as being most suitable.

It was to be two years before the project 'got off the ground' during which time the Federal Council agreed to the contest being a competition between States, the winning State to hold a perpetual trophy for a year, and to receive a special Remembrance Day Certificate. The basic rules were drawn up by the late Major W (Bill) Mitchell VK3UM, with the assistance of the then Federal Contest Manager, E H Jenkins VK3QK. The trophy was designed and constructed by the late George Glover VK3AG, QM, (honorary Life Member of WIA) with some assistance from George Manning VK3XJ. The certificate was designed by the late Mr Frank Manly, a British engraver with the Commonwealth note printing branch.

The weekend nearest to the 15th August (D-Day in the south west Pacific area of World War II) was selected as the most appropriate time to hold the Remembrance Day Contest and the first event was held in August 1948. It was an immediate success and has remained Australia's most popular contest. It has perpetuated the memory of the following radio amateurs —

VK2BQ F W S Easton RAAF VK2JV C D Roberts AMF VK2VJ V J E Jarvis RAAF VK2YK W Abbott RAAF VK2AJB G C Curle RAAF VK3DQ J D Morris AMF VK3GO T Stephens RAAF VK3HN J McCandlish AMF VK3IE J E Mann RAN VK3NG N E Gunter AMM VK3OR M D Orr RAAF VK3PL J F Colthrop RAAF VK3PV R P Veall AMF VK3SF S W Jones AMF VK3UW J A Burrage RAAF VK3VE J E Snadden RAAF VK4DR D A Laws AMF VK4FS F J Starr RAAF VK4PR R Allen RAAF VK5AF C A Ives RAAF VK5BL B James RAAF VK5BW J G Phillips AMF VK6GR A H G Rippin RAN VK6JG J E Goddard RAAF VK6KS K S Anderson AMF VK6PP P P Paterson RAAF.

Being such a popular Contest has not been without its traumas. Many debates over the years have taken place within the WIA Federal Council about the rules. Claims have been made that they favour one division in respect to another, or the larger with respect to the smaller ones. Many variations to the rules have been implemented and additional sections included over the years to encourage participation and interest. The various Contest Committees played an important part in this, and continue to do so.

The Contest's popularity has never really waned although percentage of operation has varied. A summary of the annual winners follows —

Australian Capital Territory (VK1) 1977 — 1978: New South Wales (VK2) 1948: Victoria (VK3) 1967: Queensland (VK4) 1963, 1970, 1971: South Australia (VK5) 1954, 1955, 1964, 1965, 1972, 1974, 1975, 1976, 1979, 1980,

Remembrance Day Contest

ZS, WIA Federal Historian

ld as we that are left grow old
y them nor the years condemn
of the sun and in the morning
ll remember them.

1957

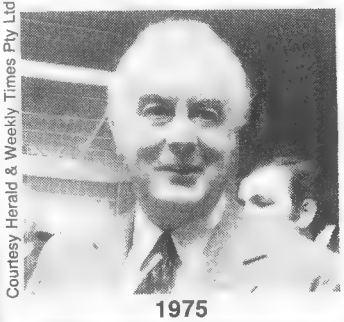
1984

Courtesy Herald & Weekly Times Pty Ltd

1961

Courtesy Bud Pounsett VK4QY

1982



Courtesy Herald & Weekly Times Pty Ltd

1975

Courtesy Ken McLachlan VK3AH

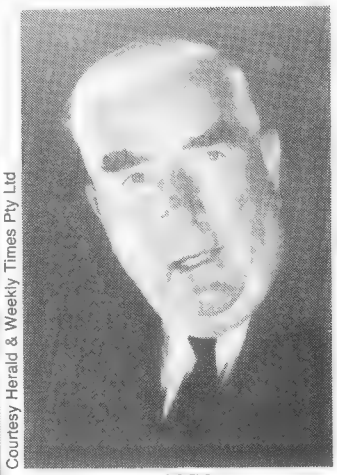
1983

Courtesy Ken McLachlan VK3AH

1972

Courtesy Herald & Weekly Times Pty Ltd

1980



Courtesy Herald & Weekly Times Pty Ltd

1958

Courtesy Telecom Australia

1974

1981, 1982, 1983, 1984: Western Australia (VK6): 1952, 1953, 1956, 1957, 1958, 1961, 1962, 1966: Tasmania (VK7) 1949, 1950, 1951, 1959, 1960, 1968, 1969.

In 1957 the Federal Executive inaugurated the idea of 'going to air' prior to the Contest with an official opening address given by some notable person, firstly to add prestige to the event and secondly as a means of keeping the name of amateur radio in the news. In the early years the address was preceded by the National Athem and the introduction of the speaker by the Federal President or another official of the WIA. The information was given to the press. These arrangements do not appear to have been continued in more recent years. The following distinguished people have willingly given of their time to open the Remembrance Day Contests since 1957 —

1957 — His Excellency the Lieutenant Governor of Victoria, Lieutenant General The Honorable Sir Edmund Herring, KCMG, KBE, DSO, MC, ED.

1958 — The Right Honorable Robert G Menzies, Prime Minister of Australia.

1959 — His Excellency, Colonel Sir Henry Abel Smith, KCBO, DSO, Governor of Queensland.

1960 — The Right Honorable, The Lord Rowallan, KT, KBE, MC, Governor of Tasmania.

1961 — His Excellency, Lieutenant General, the Honorable Sir Eric Woodward, KCMG, Governor of NSW.

1962 — His Excellency, Sir Charles Gairdner, KBE, CBE, KCMG, KCVO, Governor of Western Australia.

1963 — His Excellency, Sir Rohan Delacombe, KBE, CB, DSO, Governor of Victoria.

1964 — Rupert H Arnold, QPM, Chief Commissioner of Police in Victoria.

1965 — Major General Ivan N Dougherty, CBE, DSO & Bar, ED, B. Economics, Director of Civil Defence in New South Wales.

1966 — Brigadier A E Brown, CMG, OBE, Director of the Pacific Region of the Commonwealth War Graves Commission.

1967 — The Honorable Allen Fairhall, MHR, Minister for Defence.

1968 — The Honorable Sir Paul Hasluck, MHR, Minister for External Affairs.

1969 — The Honorable Phillip Lynch, MHR, Minister for the Army.

1970 — Horrace S Young, Controller Radio Branch, Central Administration, Post-Master General's Department.

1971 — Air Vice Marshall Sir Richard Williams, KBE, CB, DSO.

1972 — G Maxwell Hull VK3ZS, Federal President and Honorary Life Member of the Wireless Institute of Australia.

1973 — Myles F E Wright, Chairman, Australian Broadcasting Control Board.

1974 — Senator Reginald Bishop, Postmaster-General of the Commonwealth of Australia.

1975 The Right Honorable E G Whitlam, Prime Minister.

1976 — The Right Honorable Malcolm Fraser, Prime Minister.

1977 — Horrace S Young, Assistant Secretary, Radio Frequency Management Branch, Department of Posts & Telegraph.

1978 — His Excellency, Air Marshall Sir Wallace Kyle, GCB, KCVO, CBE, DSO, DFC, Governor of Western Australia.

1979 — Richard E Butler, Deputy Secretary General of the International Telecommunications Union (ITU).

1980 The Honorable Anthony A Staley, MHR, Minister for Posts & Telegraph.

1981 — The Right Honorable Ian Sinclair, MHR, Minister for Communications.

1982 — David Jull, MHR, Member for Bowman, Chairman of the Federal Government Communications Committee.

1983 — Bruce Bathols VK3UV, Federal President, Wireless Institute of Australia.

1984 — The Honorable Michael Duffy, MHR, Minister for Communications.

The opening address for the 1985 Remembrance Day Contest will be presented by Richard L Baldwin W1RU, President of the International Amateur Radio Union (IARU). Mr Baldwin will also be visiting Australia during the WIA's 75th Celebrations this year.

The 75th Anniversary Year of the WIA records the thirty-seventh Remembrance Day Contest. On this occasion the Institute looks forward to a high percentage of participation.

WE WILL REMEMBER THEM

HOW'S DX

Ken McLachlan, VK3AH
Box 39, Mooroolbark, Vic 3138

As announced at the bottom of last month's notes, I will be continuing to write this segment of the magazine and look forward to the future and the assistance that has been received from so many.

Entering into the fifth year of gathering, writing and correlating information is not getting easier in lieu of the band conditions which, to the newcomer and old timer alike, are not very lively, but there is DX there and it is going to seem a lifetime before an amateur, who is newly licensed, or someone who has recently been bitten by the DX "bug", will notch up their first 100 countries.

It will seem an eternity before you will receive confirmations, but take heart, as the majority will come. Remember that many countries have only access to their QSL bureau for inward and outward cards and all packaged cards are sent by surface mail.

If you are a real DXer you will acquire lots of patience and suffer many frustrations before you gain your DXCC but don't give up as you will make many life long friendships along the way. Good luck!

DESPERATION

Greg Wilson N4CC, is offering one year's subscription to QRZ DX for the first person to supply him with information leading to a QSL confirmation from Hal VS9PJV, for 1971. Readers dig deep and think hard, as QRZ DX is an excellent weekly publication. Greg would also appreciate to know if anyone was a recipient of a VS9PJV card. His QTH is Route 2, Box 553-A, Yulee, FL 32097 USA.

GOUGH ISLAND

A diary note for October. Art VK3UX, reports that Sam ZS2SI, has indicated that Gough Island 40 10 Sand 9 45 W may be activated sometime in October and the call will be ZD9GI. QSLs to ZS2SI.

MANY CALLS — MANY LOCATIONS

Many VKs have worked Jose Ahumada, however many may not recognise the name but surely LU2ZY from the South Sandwich Islands, will ring a bell!

Born in 1926, Jose lived all over Europe with his family in the 1930s. He obtained his law degree in Argentina then entered the Argentina Diplomatic Corps in 1951. He has held a licence for forty years and been the IARU Liaison Officer for thirty years as well as serving as the General Secretary of the Radio Club of Argentina.

Jose has operated as LU2ZY (1955), LU3ZY (1977) and LU5ZI (1981 and 1983) from the South Shetland Islands, LU8DX and LU1ZE from Staten Island and the Antarctic respectively, LU5ZA, LU1ZA (1983) and AZ5ZA in 1984 from the South Orkney Islands. Other calls he has held include LU0CQ/MM, LU2ZA, LU2ZC and LU2ZS. His first call was LU8CW, with which he made DXCC number 252 in 1951. No mean effort!

He is now retired and lives at either his Buenos Aires or Springfield QTH with his XYL Patricia LU3YL, sometimes heard LU3YL/W4. Patricia has beaten Jose to the DXCC Honour Roll with a score of 311; Jose is six behind her but is sure to make it up from the Buenos Aires QTH with equipment such as a TR7, TS930, Alpha Linear and a TH7DXX at a height of fifty-five metres.

Jose has given many a new country and I am sure all DXers wish him a very healthy and happy retirement. Also a few more DXCC countries to bring him on the Honour Roll with Patricia.

The above was adapted from the Carolina DX Association Bulletin and QRZ DX, for the benefit of those that may possess cards from this amateur duo.

DAMAGED CARDS

All cards for NG84O have been mailed to those who supplied envelopes and IRCs. All others are en route to the bureaus. Inadvertently some printer damaged cards got into the mails, these can be replaced by either returning the card or providing log data to K6LAE with an envelope and IRCs. Please do not hassle Dick NG6GO about this matter.

ZC4 AGAIN

Don Search W3AZD, in charge of the ARRL DXCC Desk, has nominated the following ZC4 calls that are definitely valid for DXCC purposes as a Sovereign Area Base.

The calls that will count for a new country include ZC4AB, AK, AKR, AM, ASG, AU, BI, BSG, CB, CI, CN, CS, CT, CW, CZ, DA, DY, EPI, ES, ESB, ESG, FE, GB, GM, HC, HMS, HS, ID, IK, IO, JB, JE, JH, JU, JV, KF, LC, MR, MT, NL, PC, PM, RB, RM, RP, SC, SJ, SS, TEN, TI, TX, UHF, VHF, WD and WW.

Yours truly hasn't had time as yet to seek out the ZC4 cards, or seek out the current active stations.

SATELLITE DXCC

The ARRL have announced that "Contacts made via AMSAT and OSCAR 10 will be now accepted for the Satellite DXCC Award. Credit is retrospective to the date OSCAR 10 first became available for contacts". The report on W1AWs ARRL DX Bulletin remarks that the certificate is a non-endorsable, one time only award and applicants must submit forms CD164 and CD253, which are obtainable from Newington by supplying a 190 x 100mm self addressed envelope and adequate postage.

BEEN THERE, BUT COULDN'T TRANSMIT

All DXers hearts went out to Erik SM0AGD, and crew over the St Brandon effort that was a non event, even though they had received provisional permission from the Mauritius Department of Telecommunications with the promise of a licence on their arrival.

On arrival in Mauritius, a 3B8 licence was issued but they were told that St Brandon and Agalega were "out of bounds" to visitors, hence no licence. Every effort was made through diplomatic channels to "officialdom" but no definite answer was given.

They met the skipper of an Australian boat, the AURA II, who was tripping to and from St Brandon with scuba divers and with the Immigration Officer's approval, they went along with the hope of permission being granted and that if Jacky 3B7CF came along, his call could be used. Jacky, the day prior to departure, was alerted of the fact that he too was not permitted to operate from the area.

Erik and Thor LA7XB, made the 77 hour trip and even went ashore and erected a vertical in case permission was granted. Permission was never granted and the people that pirated 3B7 during the period never went through the trauma and frustration that Erik and Thor endured.

It is a pity that Erik, one of the world's best DX operators and QSLers, who has given so much to the hobby from various parts of the globe, was "conned" into making a fruitless and expensive trip to give someone a new country. Thank you Erik and congratulations on your integrity not to transmit and hope you get accreditation at a later date, as has been done so often, in similar situations in the past.

It is hoped that your faith in the hobby has not been destroyed by "officialdom and red tape" but being aware of your tenacious and determined character I am sure you will be heard from another prime location in the near future.

KE5KK is not the Manager of 3B7CD that was a pirate station.

ENTERPRISING

It was interesting to see an article entitled "Recycling Amateur Radio QTHs" in the May edition of World Radio where Mary N6KLM, has set herself up in the business of becoming a broker for the buying and selling of amateur QTHs.

Mary, who is becoming an avid DXer and is well on the way to acquiring her Extra Class licence, is working on the theory that it is a waste to remove an antenna installation and then go through the trauma of getting new permits etc. So amateurs sell to amateurs and buy from amateurs. It is a brilliant idea but not a first though Mary!

Many years ago, Keith VK3ANI and his XYL Pam, now VK6KN, had difficulties selling their QTH. No better place than Hamads in this news magazine, he thought. A evening city paper columnist, with a prime position in the paper that money couldn't buy, picked it up and reported it. The phone ran hot and the property was quickly sold with no agent's fees!

POLICE/FIRE GAMES

The San Jose (California) State University Amateur Radio Club will be on the air this month under the call W6YL as a special event station for the 1985 World Police/Fire Games. These games have attracted some 10,000 athletic participants from around the world.

Main operation of the station will be from 1900 UTC on the 4th August to 0700 UTC the next day. This pattern will continue until the 7th, then limited operation until the close of the event on the 11th. Frequencies to watch are 7.240 and 14.270 MHz for SSB. CW is catered for on 7.125 and 14.040 MHz.

To gain a commemorative certificate, send your QSL and a large self-addressed envelope with two IRCs to SJSU ARC, c/- Student Programmes and Services, PO Box 2, San Jose State University, San Jose, California, CA 95192 USA.

DILEMMA?

Have you received your CE0AA card yet? Mickey CE3ESS, has a hunch that mail to PO Box 700 is being "lost" and suggests either of these addresses. Radio Club de Chile, PO Box 13630, Santiago, Chile or Mickey Gelderstein, PO Box 9834, Santiago, Chile. This column recommends that it be sent Registered Mail. The expense is high, but San Felix will not be heard again for a long time.

TEN METRES NOT DEAD

Ian ZD8LJ, made 436 contacts in five hours of operating. Not bad operating and just under 10 percent were on 10 metres. He hopes to return later this year and stay for one week. It pays to listen and scan the bands.

RUGGED UP — NOT REALLY

The latest edition of Weather News, the house journal of the Bureau of Meteorology has a photo of the Macquarie Island Bureau's staff. Included are Denise VK0YL and Graham VK0GC, looking very fit in casual dress. The rubber boots really don't suit Denise but I am sure they would keep the feet dry. It is hoped she can appear as soon as duties permit.

MONACO

Valid licences are only issued to residents of Monaco. Due to the operations of some operators of late purporting to be licenced, the Monaco Amateur Radio Society will be making representations to the ARRL. This of course refers to the cards being sent out by EA5AGY for an operation by EA5FDO, who was signing 3A2TO. The endorsement of 103/3A means nothing to the authorities and the latest issues are in the 3A2T-series.

ENTHUSIASTS OF 160 METRES

One for the diary. Manfred DK9CG/TK, will return to activate Corsica next month with the accent being on 160 metres. Write and set up a sched now!

PITCAIRN ISLAND

Jim G3OKQ/VR6JR will be active on the bands as time permits. Jim is on the island, in a voluntary capacity, to assist in repairing the wharf. QSLs to his home call will be attended to when he returns.

GUAM/KH2

A note has been received from Ed KB6DAW/KH2, Secretary of the Mariannas Amateur Radio Club (MARC), which supports the island communications system for many diverse activites.

Some of the active amateurs on the island include WH2ACV, KG6RN, KG6JJH, AH2AN, KS0C and KB6DAW/KH2 on SSB. CW is not forgotten as K0AX, KS0C and AH2G are exponents of that art with W1YRM and KG6DX concentrating on OSCAR.

Ed notes that being in the Pacific directly north of Melbourne has a few advantages, as in the two years he has been an amateur, he has notched up Worked All States (WAS) and some 205 countries.

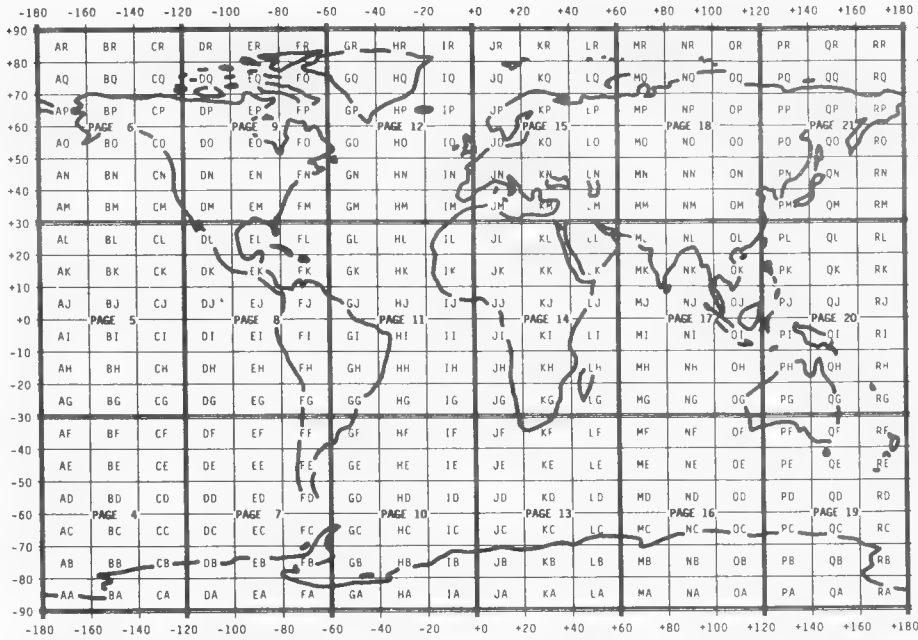
Confirmations are low, as only 124 (60 percent) have come to light so far.

All of the operations like to have a "rag chew", so if you hear a Guam station, give them a call and have a chat. Of course Ed notes that anyone who has the opportunity of visiting the island would have a lot of fun on the radio as DX is usually open to some part of the globe.

MAIDENHEAD SQUARES

This has taken on and of the 324 "Fields" some SM stations have really got amongst it. SM3CWE has 42 on 1.8, 122 on 3.5, 139 on 7.0, 220 on 14, 158 on 21 and 128 on 28 MHz. Not a bad effort!

So if you hear an SM know your Maidenhead reference to save embarrassment.



Maidenhead Field Map — The Radio Amateur's World Atlas containing 32400 Maidenhead Locator Squares is available from WIA Divisional Offices.

BITS AND PIECES

Doug J6LDB was formerly T30DB. ** II2ARI was celebrating the 111th anniversary of the birth of Marconi. ** KG4DX is now QRT. ** Don W6AM, the Gentleman Dxer sadly became a Silent Key in May at the age of 86. ** UA3SYC/1 is another Franz Josef Island Station. ** All NCDXF beacon reports go to W6RQ. ** 4X85WSE was active from Tel Aviv for the World Stamp Exhibition. ** Ross WB6GFJ/VK4BZZ/FO0FB, a WIA member will be visiting VK this month. ** Francis FW8AF, is due to go QRT shortly leaving no activity from Wallis Island. He can be heard daily around 14.275 MHz working F8RV. QSL to PO Box 92, Matautu, Wallis Island, via Noumea, South Pacific. ** More TA and BY stations appearing on the bands. ** 3X0HAB, generally above 14.300 MHz, will be QRV until December, then home to DL before embarking to ZL. ** Listen for AH3AC/TF who hopes to activate Jan Mayen this month. Call unknown. ** Another to listen for over the next few months is G4RWJ/SU. ** XZ2HN is quite active?? ** 9X5WP gives his QSL info as WB6VKD.

QUIET BANDS

According to Steve VK2PS, WIA Federal Councillor for the VK2 Division, the band conditions have been very poor. Steve busy as he always is with Institute affairs, managed to work a few interesting stations such as GW2SB, HG19HB*, JW6VDA — QSL via LA5NM, KL7JA, NA6T/KH4 (Midway Island) QSL to KD7P, SP6HEK and YO2BEH on twenty metres. Forty metre contacts included CE0ZIG*, CT3DZ, FM5CD* and YV4DJZ. Down on 160 metres 3D2RN* was the only station logged. *(* donotes CW).*

Steve had time to browse through some of the cards he received such as AH8/DL1VU, GB2FAS (Farnborough Air Show Special Station), HA5TL, HL9TA, IT9AUA, LZ1BC, SP40LWP (Commemorating 40 years of the Polish Army) and VK9LH.

Joy VK2EBX, has a few snippets of interest that are worth passing on including the correct address for FG7CBS, QSL Manager for FG4CB/FS which is Adolph Brin, Route de Colombier, F-97133, St Barthelemy, French St Martin. Another QTH of interest Joy has sent is that of OX3KM. QSL to PO Box 103, Godhavn, Greenland 3953.

Our YL poet has been getting some rare ones such as Nanda 4S7YLR, 9M2MM, DJ0CP (YL), HH7PV, PA0QX and Chitra VU2CVP on 20 metres. Forty has yielded A35PP QSL via ZL4QS, CE0AE — WA3HUP, C6ANU, Barbara CP5LE, EA8ANT, HC5EA, VY1CW, XF4MDX — XE1MDX and Peter ZK2IK, whose QSL arrangement is 16 Jessie Street, Petone. NZ.

Courtesy of JA CQ and VK6RO

The operating console of BY1PK.

SILENT KEY

All DXers will be shocked to learn of the sudden death of Father Dave Reddy CE0AE. Dave suffered a massive heart attack on the 4th June and passed away two days later.

Dave was an avid and meticulous DXer, as well as a thorough gentleman at all times, that experimented on bands from 160 to 6 metres. He gave most VKs and Pacific stations, in the last decade, Easter Island as a new DXCC Country and was willing to make scheds at any hour of the day or night to accommodate a new country for anyone that requested it. This was no mean feat, as the hours of his occupation were very demanding.

His QSLing was ably carried out by his dear friend, Mary Ann WA3HUP, with whom he had regular scheds to transfer his logs, so there would be no holdups in his cards being returned to the recipient.

A sad loss to the fraternity and the populace of Easter Island, Dave's cheery voice will be missed by all amateurs worldwide.

HEARD ISLAND AGAIN

According to reports, the Nella Dan is departing from Hobart on the 16th September, enroute on a Marine Scientific Cruise. Heard Island will be the first port of call, with an expected arrival time of the 29th September, departing next day, after a meteorologist, glacierologist and others in the group have been put ashore, possibly by helicopter, to conduct short scientific studies.

This vessel is scheduled to rendezvous with another Antarctic tripper, the Ice Bird, prior to its return to Heard Island on the 29th October. It is scheduled to leave again on the 5th November, call in at Kerguelen Island next day and return to Hobart on the 22nd of November.

At this juncture, it is unknown if any amateur activity will be involved during the cruise.

VIARC

The Vienna International Amateur Radio Club's first Newsletter and an accompanying letter from the Station Manager, John NK4N/OE3ZOC, who also doubles as the Newsletter's Editor, provides some interesting reading.

John notes that it would help them considerably if members requesting cards from 4U1VIC, send them to the Austrian Bureau and not the operator. If sent direct, please two IRCs, not Austrian stamps, as amateurs and SWLs generally send stamps to the value of seven schillings, which isn't adequate for air mail postage and secondly they cannot be posted at the United Nations Post Office in the Vienna International Centre. With two IRCs, the club will post air mail with UN Vienna stamps.

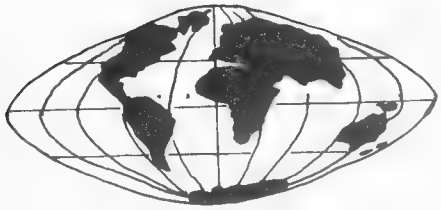
John mentions that the club appreciates the service provided by the Austrian Radio Club, in assisting, as being the pick-up point for their cards and it really speeds cards up if the operator's name is on the QSL.

Some good news is that they are proposing to erect a three band beam in lieu of the vertical, that has done such a sterling job. This however will take time and it may be some time before it appears and the signal is more easily heard in the Pacific.

THANKS

Sincere thanks are extended to the following that have allowed these notes to be written. The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, RSGB DX NEWS, QRZ DX, LONG SKIP, DX FAMILY FOUNDATION NEWSLETTER, JAN and JAY O'BRIEN'S QSL MANAGER LIST and KH6BZF REPORTS. Magazines including WEATHER NEWS, CQ, cqDX, QST, RADCOM, JARL NEWS, JA CQ, 73 for Radio Amateurs, BREAK IN and VERON.

Members who have contributed include VKs 2PS, EBX, 3FR, YJ,YL, WB6GFJ/VK4BZZ/FO0FB and G3NBC. Overseas amateurs include KB6DAW/KH2, G1EOD, ON7WW and ZLIAMM. Sincere thanks to one and all.



VHF UHF - an expanding world

Eric Jamieson, VK5LP
1 Quinns Road, Forreston, SA 5233

All times are Universal Co-ordinated Time and indicated as UTC.

AMATEUR BANDS BEACONS

Freq	Call Sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.075	VS6SIX	Hong Kong
50.109	JD1YAA	Japan
51.020	ZL1UHF	Mount Climie
52.033	P29BPL	Loloata Island
52.100	ZK2SIX	Niue
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL3MHF	Hornby
52.325	VK2RHV	Newcastle
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.420	VK2RSY	Sydney
52.425	VK2RGB	Gunnedah
52.440	VK4RTL	Townsville
52.450	VK5VF	Mount Lofty
52.460	VK6RPH	Perth
52.465	VK6RTW	Albany
52.470	VK7RNT	Launceston
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.019	VK6RBS	Busselton
144.410	VK1RCC	Canberra
144.420	VK2RSY	Sydney
144.465	VK6RTW	Albany
144.565	VK6RPB	Port Hedland
144.480	VK8VF	Darwin
144.800	VK5VF	Mount Lofty
145.000	VK6RPH	Perth
147.400	VK2RCW	Sydney
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.420	VK2RSY	Sydney
432.425	VK3RMB	Ballarat
432.440	VK4RBB	Brisbane
1296.171	VK6RBS	Busselton
1296.480	VK6RPR	Nedlands
10300.000	VK6RVF	Roleystone

A note in the "West Australian VHF Group Bulletin" for me drew my attention to the wrong frequency for VK6RPH and this has been corrected in this issue to 52.460. It was also mentioned the 6 and 2 metre beacons VK6RPH are only at Nedlands CAE temporarily, and expected to be back at Bickley in two months, so this could be achieved by September.

SIX METRES

Nev VK2QF, in sending in his corrected six metre standings, wrote a short note to say there had been no current six metre activity. However, the note bears a PS which said the six metre band opened on 9/6 at 0629 when he worked VK3XQ at 5 x 2 , at 0632 VK3YDE 5 x 9, VK3DUT weak, and at 0641 VK3ZYN at Geelong 5 x 9 but with heavy QSB. The VK7RST and VK7RNT beacons had been heard at S1 prior to working the VK3s. Nev's comment "six metres never dies, it just fades away at times!"

From Japan comes a short letter from JA1VOK, which says that XX9UT followed by JA1UT worked about 360 JAs with all areas on 28/4, 1/5, 2/5, and 5/5. The DX-pedition to XX9 (Macao) was the first for the six metre band. JA1VOK worked XX9UT at 1026 on 28/4 at 5 x 9.

JA1VOK on 28/4 also worked VK4JXZ at 0953 and VK8VV at 1155. VK8GB was worked at 0852 on 13/4. Also George DU1GF in Manila who has been active on six metres since Cycle 19, and is 73 years of age, 5 x 9 signals about 4 weeks apart on 2/3, 6/4 and 5/5.

David VK2BA sends his Six Metres Standings List, and mentions on a recent tour of the east coast of Queensland he met many six metre operators, including John VK4TL, Ross VK4RO, Harold VK4ANR, Lloyd VK4FXX, Lyn VK4ALM, Ron VK4FTJ and Dave VK4TUA. He spoke to a number of others after fossicking them out on two metres and then going to six!

During the last few days of April David heard the following on his mobile rig: JA2DDN, JA4MBM, plenty of JA5s, H44HIR and P29BPL beacon, and worked P29PL and P29ZFX. Looks like he had a rather busy trip.

David included a couple of pages from the April 1985 Solar Geophysical Summary from the Ionospheric Prediction Service, which in general comments on Solar Activity states: *"Solar activity was low until 21 April when a region began to grow rapidly producing an M class flare on 22 April and an X class flare on 24 April. The region appeared to be capable of producing further events for much of the remainder of the month but did not do so.*

"An interesting feature during the month was a region of reversed polarity to that normally observed for similar regions during the solar cycle. The polarity of sunspot regions reverse from one solar cycle to the next and so the region observed this month can be regarded as one of the first regions of the next solar cycle." David comments: *"Anyway, it is nice to know that the sun is at least thinking about the new cycle!"*

Under the heading of "Geomagnetic Disturbances" the notes said on 23 to 25 April the magnetic field was at unsettled to active levels, and 26 to 30 April the magnetic field at active to storm levels particularly on 28 April when major storm levels were reached. There was also an intense magnetic disturbance on 20/21 April, the A index for 21 April was 77 which makes this day one of the most disturbed days since 16 November last year.

September and October of course are the equinoxial periods when there is a greater possibility of extended DX including trans-equatorial. It is noted in QST's "World above 50 MHz" that Europeans have been worked from the US east coast every summer for the past four or five years, and Japan was worked from the west coast in June 1977 which was well before the peak of Cycle 21, so it will be the vigilant operators who grab the occasional DX which could appear and usually for very short periods. Suggest you keep the antenna looking out across the Pacific for the next few months at least.

50 — 54 MHZ DX STANDINGS

DXCC Countries based on information received up to 15th June 1985. Crossband totals are those not duplicated by 6 metre two-way contacts. Credit has not been given for contacts made with stations when 50 MHz operation was not authorised.

Column 1: 6 metre two-way confirmed
2: 6 metre two-way worked
3: Crossband (6 to 10) confirmed
4: Crossband (6 to 10) worked
5: Countries heard on 50 MHz
6: Countries heard on 52 MHz

CALL SIGN	1	2	3	4	5	6
VK2BA	28	28				
VK2DDG	25	26		2	12	3
VK3OT	25	25			10	
VK4ZJB	23	24				4
VK2QF	23	23				
VK2VC	22	22				
VK3XQ	20	19			1	1
VK5LP	18	18			6	3
VK3AMK	17	17				
VK4TL	17	17				
VK3NM	16	17				
VK7JG	16	17			2	
VK4ALM	15	16				
VK4ZSH	15	16				
VK3AUI	14	15				
VK6OX	10	10	1	1		
VK6RO	9	9	3	3	2	3

The minimum number of countries confirmed for an operator to commence being listed is five, including VK.

The next list is due to appear in February 1986 and entries will need to be on my desk no later than 15th December 1985. Claimants are reminded full details of all contacts are required, they being the date of the contact, time in UTC, call sign of station worked, country, mode, report sent and received, QSL sent and whether received. Split frequency contacts should be indicated, and please add YOUR call sign and signature, plus the date of your claim.

Most of the submissions sent to me so far have been very neat and precise and are a great help in determining eligibility. Computer printouts and updates are quite acceptable!

The accuracy and eligibility is as correct as I can determine. I have been told some contacts by certain operators were concluded on 28 MHz after 50 or 52 MHz faded out, but in the absence of any proof of these other than what I hear there is really nothing I can do. Obviously I cannot hear everything that goes on the VHF bands! DX standings are obviously at the mercy of the honesty of the claimants and I believe in general they are honest claims.

There are quite a few operators around Australia who have worked a considerable number of countries and who are not included on this list and it would be great to have them included — *what about it chaps?*

EME ACTIVITY

Chris VK5MC has advised me that during November the ARRL EME Contests are to be held on 2nd and 3rd and 23rd and 24th. This is a very interesting period as there will be many EME stations operating on 144 MHz and some of these stations are capable of being heard by ordinary operators with reasonably established 144 MHz stations.

Whilst you may think this could not interest you, however, you many recall I mentioned in these notes last year that as a result of my listening I was able to identify no less than 14 EME stations from all over the globe. My antenna system does help of course, being a stacked pair of 13 elements with a masthead preamplifier, but there are many stations now working through OSCAR who should be capable of hearing some signals, particularly as they have the capability of elevating their antenna system whereas I cannot, being tied to the rising and setting moon only.

Last year Chris VK5MC gave me a computer printout for my location and this included azimuth and elevation bearings plus GHA and declination for the moon. I have a similar printout for this November and Chris has indicated he is willing to provide a printout for any operator who is serious about giving it a try based upon having a system with a reasonable chance of hearing something.

If you would like to give it a go, please contact Chris Skeer VK5MC, Hatherleigh, SA. 5280, giving details of your latitude and longitude, enclosing a large stamped self addressed envelope *(repeat . . . I mean quite a large envelope)* plus three 33c stamps. Contact should be made with Chris as soon as possible as he does not have unlimited spare time, and some effort is needed to make these printouts so be fair and give him as much time as possible. Good luck with your efforts, but you are advised you may need to get out of bed early a couple of times to do it properly!

Further on the EME scene, Doug VK3UM sends

information of his 432 MHz EME activity during May. ON 25/5 contacts were made at random with the following: 0332 K5JL 449 received, 449 sent; 0355 ZL3AAD 449/439; 0410 JA4BLC 559/559 on CW, also worked on SSB at 3 x 3 and 3 x 3; 0511 W7GBI 449/0; 0835 a CQ resulted in YU1AW 549/559 on CW and 5 x 5/5 x 5 on SSB; 0855 I5MSH 549/549; 0915 DK1UV 439/449; 0930 SM1BSA 0/0; 1000 SM6EUP 0/0; 1035 OK1KIR 449/449 and 1055 DF3RU 449/0.

On 26/5 there was bad libration fading which made contacts difficult but the echoes were good. 1005 DK1UV 0/0 and 1027 G4NQC 0/0. These contacts have now given Doug five new stations, one new country for a total tally of 37 initial contacts in 16 countries. This is rather a good effort when one considers most of the contacts have been random. Good to hear from you again Doug.

The Illawarra Radio Group via "The Propagator" and Lyle VK2ALU did not make any contacts since the last report but upgrading of the equipment continues. It was pleasing to note that Lyle VK2ALU has been awarded a Life Membership of the Illawarra Amateur Radio Society. He was a foundation member in 1962 when the club was reformed, and President during 1967/68 and other administrative posts since then.

Eventually the Club acquired the use of the CSIRO radio telescope dish at Dapto and Lyle became involved in its rejuvenation and the first EME contact by VK2AMW, the Club station, was on 10/3/73 on 432 MHz. Vandalism at Dapto eventually caused the dish to be moved to a safer location and further work saw the dish being used on 1296 MHz, much of this work being performed by Lyle. His efforts had not gone unheeded though, as he was presented with the Ron Wilkinson Award by the Federal Executive of the WIA recently.

We congratulate you Lyle on receiving both your Life Membership and the Ron Wilkinson Award, and now that you have retired from the Electricity Commission of NSW hope that you will have even more time to pursue your hobbies and other pursuits, particularly, of course, EME.

CONTACTS FROM SYDNEY

Gordon VK2ZAB has again written in a different vein this time, and believes it would be of interest to others to know what it has been possible to work from his location at Berowra Heights in Sydney on 144 MHz SSB during the period 16th April 1985 to 31st May 1985, listing contacts over 200km only.

STATION	Number of times contacted	Location	Approx distance from VK2ZAB
VK2MQ	11	Moree	474 km
VK1RK	10	Canberra	262
VK2EVB	8	Coffs Harbour	412
VK4LC	3	Eagle Heights	644
VK4AGQ	8	Brisbane	700
VK2DGT	1	Coffs Harbour	412
VK2DDG	2	Byron Bay	596
VK2ZRF	12	Adaminaby	342
VK3UM	4	Melbourne	696
VK2EKT	7	Queenbeyan	260
VK3ZBJ	3	Melbourne	740
VK1BJ	20	Canberra	262
VK4KJL	6	Brisbane	700
VK3TV	1	Strathbogie	620
VK3KEG	10	Melbourne	740
VK1GL	14	Canberra	262
VK3AUG	2	Melbourne	740
VK3NM	1	Melbourne	735
VK1AU	3	Canberra	262
VK2ZJK	16	Tamworth	280
VK4AUR	4	Brisbane	700
VK4BAT	1	Brisbane	700
VK2CTB	1	Tamworth	280
VK2AKU	3	Narrabri	384
VK2DVZ	4	Taree	228
VK2YEZ	2	Griffith	476
VK2EJJ	1	Wagga Wagga	384
VK3AZY	1	Melbourne	735
VK1ZEI	1	Canberra	262
VK1BUC	2	Canberra	262
VK1KRS	1	Canberra	262
VK1ZQS	1	Canberra	262
VK1BX	1	Canberra	262
VK1VP	1	Canberra	262
VK1CJ	2	Canberra	262
TOTAL	**168**		

Contacts over 200 km on 70 cm SSB from VK2ZAB 16th April 1985 to 31st May 1985.

VK1ZQS	1	Canberra	262 km
VK1CJ	1	Canberra	262
VK1GL	1	Canberra	262
VK1VP	2	Canberra	262
VK1BG	2	Canberra	262
VK3UM	3	Melbourne	696
TOTAL	**10**		

The VK2ZAB 144 MHz station runs a TS700A with 400 watt PEP linear and BF981 preamp to four 9 element horizontally polarised Yagis. On 70cm the station runs 10 watts from an IC490A and four 11 element Yagis.

The one thing that continues to upset Gordon is the action of some selfish or uninformed people insisting on conducting local QSOs on the calling frequencies on both bands. One such case occurred as Gordon was compiling the above list, when 144.1 was occupied for two solid hours by local QSOs without a break! Anyone wanting to use the calling frequency or even just monitor it for possible DX had no show whatsoever. *(Fair go chaps, those concerned are hardly playing the game . . . 5LP).*

Gordon concludes his letter by saying *"The only comment I would make is 'Who says there is little activity on 2 metres SSB?'"* It certainly is to be found in the three eastern States by looking at the above lists, perhaps VK5 misses out through lack of interest or through our lack of activity the antennas are not turned this way very often!

IN GENERAL

It's fairly obvious it has been rather quiet during the cold months when many operators migrate to the fire inside the house. There are the occasional contacts across the border to VK3 by the dedicated.

The 21st anniversary of the South East Radio Group Convention went off rather well on the holiday weekend in June. VK3 won the coveted SERG Trophy this year. There was a good attendance despite the rather wintery conditions, but this did not seem to deter the participants in the various fox hunts and hidden transmitter hunts. The usual Grand Tea completed the proceedings on the Sunday.

From "Break-In" — *"Those who think the standard metre is a length of metal enshrined somewhere in France must think again. Things have changed. From being defined in terms of the wavelength of orange light emitted by atoms of krypton the standard metre is now "the length of the path travelled by light in a vacuum during a time of interval of 1/299792458th of a second.' ZL1HV."* Now don't say you didn't know!

From the Antarctic at Mawson Base Mark VK0AQ has been having quite a deal of fun working through OSCAR. It takes a bit of effort however, as the day temperatures at the moment there are around — 26°C and the shack does not boast of too much heating. He has overhauled the VKOMA beacon on six metres and has had it running, but due to a shortage of power it will not be turned on constantly until more towards the warmer months, so we might hear him yet via Es.

Closing with the thought for the month: *"Happiness is having friends who laugh at your stories when they're not so good and sympathise with you in your troubles even when they're not so bad."* 73. The Voice in the Hills.

EDUCATION NOTES

Brenda Edmonds, VK3KT
FEDERAL EDUCATION OFFICER
56 Baden Powell Drive, Frankston, Vic 3199

Work has now began on preparing study guides to complement the revised syllabuses. Discussion with other past and present lecturers tends to confirm my view that we all set our own study limits according to our own ideas and that we are prepared to defend our opinions, sometimes quite fiercely.

The study guides are intended to provide common standards for lecturers, students and DOC. They should be especially helpful to students trying to work on their own. No guide will satisfy everyone, but the required depth of study will be set out and we hope to present statements of our expectations of student capability at the end of each section.

It is not possible to reconcile the different attitudes of various lecturers — from a simple wish to get as many passes as possible to attempts to present a high level course with exam passes of less importance. A good study guide should help the student to cope with the lecturer.

As I have said previously, lecturers fall into two groups those who see the aim as to help the students pass the exam which gives them a 'licence to start learning' and those who see the theory and truth as the important factor that the new licensee should be fully qualified before he begins to operate.

Most lecturers consciously try to achieve a balance, but it is difficult to completely suppress all bias. Perhaps the emphasis should change as the students progress from Novice to Full Licence.

No amount of discussion will completely eliminate some points of argument about particular questions or exam papers. The February Novice Exam seems to have been the "hardest" for some time, but, strangely, I had very little criticism of it. The results were the worst for which I have records — an overall pass percentage of 22.9 percent compared with figures between 40.5 percent and 54.4 percent from May 1981 to May 1984.

There have been apparently unreasonable variations before — eg. VK2 pass rates have ranged between 23.4 and 61.6 percent in samples of about 200 candidates. There are many possible reasons for this range apart from exam standard, but the February 1984 results were bad in all states except VK6.

I do feel that this exam was more difficult than previous novice theory exams, but surely not enough to have such a marked effect.

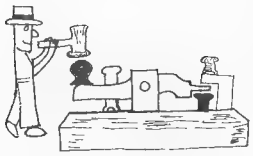
Perhaps it is a more realistic paper of a more appropriate standard — many amateurs would be pleased to see the standard raised. But it must have been disappointing for those who have expected a pass rate of about 45 percent.

Statisticians please note that I am not attempting a statistical treatment of data, although I do intend to tackle something in that line soon. It should prove interesting.

To all those sitting for the August exam, please do not let the above discourse cause extra stress and worry. Remember — READ THE QUESTIONS — there is only one question difference between 68 and 70 percent.

Best of luck to all candidates. I'm sure your exam will be the easiest for years.

Comments on education matters are welcomed on the Education Net — Thursday, 1130 UTC 3.680 MHz or thereabouts. The lack of response to my CQs in the Novice band suggests that it is not worthwhile continuing the exercise. 73 Brenda VK3KT



POUNDING BRASS

Marshall Emm, VK5FN
GPO Box 389, Adelaide, SA 5001

LEARNING THE MORSE CODE (REPRISE)

Happy birthday Pounding Brass! It's hard to believe it, but this issue marks the commencement of the fourth year of the column's publication. Since an intention of the column from the very start has been to assist newcomers it is perhaps appropriate to review a subject originally dealt with in the October 1983 issue — how to go about learning the Morse code.

What made me think of it now, of all times, is that I received a letter from Gordon VK3BGB, the Secretary of the Frankston and Mornington Peninsula Amateur Radio Club, back in February (not long before this was written). The letter said that the Club's Vice-President, Graham VK3BL had read my article on CW instruction and the Club had adopted the method for their 1984 Novice Class. Of thirteen students who started the course, three dropped out and ten sat the exam. Of those ten, **nine were successful.**

I hope they won't mind my publicly congratulating the new Novices and more particularly the instructor(s). I appreciate the compliment regarding the method, but a method is only a tool. A good carpenter can do good work with poor tools; a poor carpenter will do a poor job with the best of tools. All the credit for the success of those students belongs to their instructors, but I am delighted to think I may have played a small part by making a useful tool available to them. I doubt very much if it is original to the extent that I could lay claim to the method but it is reprinted here in the hope that it may be of benefit to potential brass pounders. . .

There are no magic recipes which will qualify you as a brass-pounder overnight. There are a number of tips and techniques which can make the job easier, but ultimately it's up to you.

When Mr Samuel Morse invented his code, he had no idea anyone would ever be trying to copy dits and dahs from wireless transmission. In the first place, the code was devised for use on the land-line telegraph. In the second place, the intention was for the signals to be transcribed onto a paper tape by a swinging pen, and then read by sight. Once operators learned the code they quickly found that they could recognise incoming characters by the clicks the pen made, and it wasn't long before they realised that it was actually easier. The pen gave way to the sounder.

The Morse code consists of patterns of short sounds and long sounds, interspersed with spaces. Forget you ever heard of dots and dashes (at least till you've learned the code) and think of the short sounds as "dits" and the long sounds as "dahs". This gives you a useful way to represent the sound of the code any time you want — your own voice.

And here, already, is your first secret technique to help make the job easier — now that you know how to say a Morse code letter by using dits and dahs, forget you ever heard of dits and dahs! What you are really interested in is the **sound of a letter.**

For example, when you hear the sound "di-di-dit" you should recognise the sound as representing the letter S. You should not count the dits. Take a more difficult one now. "di-di-dah-dit". Say it over and over to yourself until you recognise the sound of an F without having to think of it in terms of a bunch of dits with a dah toward the end.

The sound of the dits is written without the T (except for the last one) for a very good reason — they have to be said quickly, and you can't manage that if you say "dit-dit-dah-dit". Try it — "dit-dit-dah-dit . . . di-di-dah-dit".

You should now be ready to learn another secret technique, which is related to speed. You should learn the characters at a speed high enough that they sound like Morse characters, not individual dits and dahs. While you are learning the code, the character speed should be at least eight to ten words per minute (I'm not kidding!) with extra space in between the characters to slow the message speed down to something you can handle. This is called proportional spacing.

An exercise which I use when introducing someone to the code for the first time is to send the letter S at a speed of fifty words per minute. Just once, all by itself Most people can recognise it without difficulty. This proves that there is no problem in **hearing** code characters and remembering them — the problem is in converting them into letters!

You should by now be ready to start learning the code — you've had all the tools you need since the day you were born; it is simply a matter of applying them (or applying youself) to the task at hand.

Ideally you should listen to pure audio tones, such as those sent over the air or by a good practice oscillator driven by a competent operator. You certainly can learn the code characters by saying them to yourself all day long, without benefit of an instructor or tapes, but there are easier ways

If you can get someone to send to you, have them send at a character speed of 8-10 WPM, spaced out so they send a character every three or four seconds. This gives you plenty of time to recognise the character, but not enough time to mentally go through the whole alphabet until you locate it.

You need a programme for learning the characters I often hear of people suggesting that the student should learn the "dit" letters (EISH) followed by the "dah" letters (TMO) followed by the combination letters. That method makes it very easy to start, but very hard to finish. I would suggest the following groups, which give you easy letters mixed with hard ones so you don't get discouraged up by Qs, Js, Xs and Zs coming all at once

AXSET HBDIJ OPQRM ZCGNV UYLKWF 12390 67845

Learn each group thoroughly on its own, then add it to the letters already learned, then make up words using the letters learned Leave the numbers until you have mastered the letters, and you will find them a lot easier.

DO NOT GO ON TO A NEW GROUP UNTIL YOU HAVE MASTERED ALL OF THE LETTERS LEARNED SO FAR.

You can get a lot of practice in by writing the group you are studying on a piece of paper (writing dits and dahs, of course, not dots and dashes!) and glancing at it while on the bus, or at work, or whenever you have two minutes to yourself.

Once you have learned the first group you can start listening to practice tapes and the Slow Morse Broadcasts (VK2BWI, 0930 UTC, 3.550 MHz and VK5AWI, 1030 UTC, same frequency). Just worry about picking out the letters you recognise, and form a good habit now — if you miss a letter forget it and concentrate on the next one. If you strain too hard to remember a letter, you will miss the next several letters and that's a circumstance which could cost you a pass on the exam.

Once you've learned the code, it's just a matter of getting your speed up to the required level (or the level you desire, which should be higher than the required level). The only way to get your speed up is to practice, whether it's listening to tapes or live code on air, having a friend send to you, or calling out license plates from passing cars. Practice, Practice, Practice, and you will find that your speed comes up very quickly. Then all you have to do is learn the commencing and finishing signals and you are ready for the exam. Learn a bit of procedure and you are ready for the air, and that's where we want you to be

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NATIONAL CO-ORDINATOR
Graham Ratcliff VK5AGR

INFORMATION NETS

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Bulletin Commences: 1000 UTC
Winter: 3.685 MHz Summer: 7.064 MHz

AMSAT PACIFIC
Control. JA1ANG
1100 UTC Sunday
14.305 MHz

AMSAT SW PACIFIC
2200 UTC Saturday
21.280/28.878 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included in some WIA Divisional Broadcasts.

ACKNOWLEDGEMENTS

Contributions this month are from Bob VK3ZBB and Randy VE1SAT/6 through the AMSAT-OSCAR 10 Telementry.

AMSAT-AUSTRALIA NEWSLETTER

Graham VK5AGR, the National Co-ordinator of AMSAT Australia is now producing a monthly newsletter containing updated satellite news, orbital predictions, keplerian data and operating hints and techniques. The objective of the newsletter is to keep the amateur populous informed on the latest information available and to realise funds for the funding of projects or the purchase of an item (items) of hardware for a future amateur satellie project, eg. Phase-3C, Phase 4 or whatever. The cost of the Newsletter is $15 and cheques made payable to WIA (SA Division) should be forwarded to Graham VK5AGR, QTHR.

DJ4ZC VISIT TO AUSTRALIA

Dr Karl Meinzer DJ4ZC, who is referred to as "the father of Phase 3", recently had the opportunity to stop-over in VK on his way to ZL to lecture at the NZART Annual Conference. Albeit only for three days Karl and his XYL Karin visited Adelaide, Melbourne and Sydney on the 27th, 28th and 29th May respectively, and presented excellent illustrated and informative lectures to well attended and appreciative audiences.

For those who were unable to attend any of the lectures the Adelaide presentation was videotaped by John VK5KG the Federal WIA Videotape Co-ordinator and copies can be obtained from John in the normal manner.

To all those people who assisted with Karl's visit and especially to Graham VK5AGR who orchestrated the visit, the Satellite Community of Australia is extremely grateful.

OSCAR-10 ATTITUDE AND ECLIPSES

The following N block was recently received from the OSCAR-10 PSK Telementry. It highlights the repositioning required for OSCAR-10 due to the eclipses it has had to endure due to the final orbit it achieved as against the designed orbit. However, having read the bulletin you may well ask many questions. Therefore this month I am going to present a tutorial to explain the somewhat confusing terminology.

N BLOCK AS RECEIVED

N de VE1SAT/VE6:1459/50. QST: This is planned s/c positions and transponder ON/OFF times for the coming eclipse. (length – 4 wks) Starting 6/7 July till 1 August s/c will be moved from 190 lon to approx 230 lon with a 15 deg or more Lat movement. This remains constant until the first week in September when s/c is moved to 140/150 lon. Commencing 1 August both xponders OFF from MA 30 to 189. Mode L from MA 190 to 206. Mode B from MA 207 to 29. Logic for above is: *30 to 70 = recharge. 70 to 130 = eclipse. 130 to 189 = recharge. 73 Randy.*

POINTS TO NOTE FROM N BLOCK

Spacecraft Lon and Lat.
The term MA (Mean Anomaly).

The revised schedule as from 1st August, which you may note is a RADICAL departure from past schedules, however the inconvenience to the communicator in the short term must be tempered with the life of the spacecraft in the long term.

SPACECRAFT LON AND LAT

OSCAR-10 is a spin stabilised satellite with the spin axis about the Z-Axis of the Spacecraft. The Z-Axis is parallel to the plane of the solar-cell arrays and passes through the geometric centre of the arrays. Put in a very simplistic manner the Z-Axis is also the "boom" of the antennas onboard OSCAR-10, and to get the strongest signals to and from OSCAR-10 the tip of the Z-Axis must be pointed directly at you.

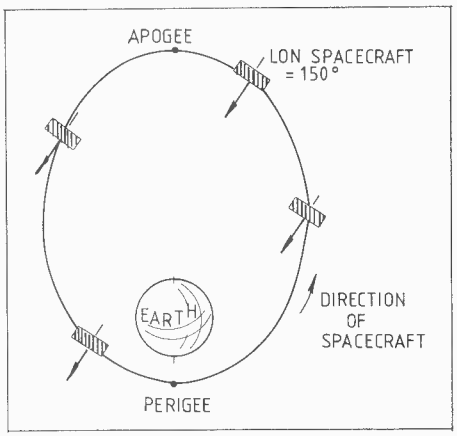

Figure 1 — Attitude of OSCAR-10 through Orbit.

Consequently because OSCAR-10 is spin stabilised at about 25 RPM, its attitude remains fixed in space. Its action is identical to the earth, which is also spin stabilised about the axis through the North and South Poles at one revolution per day. Therefore you must imagine OSCAR-10 at all times in a fixed attitude in space, (refer Figure 1). The complexity comes about when you have to define it to a point on the earth's surface, your QTH. The attitude of OSCAR-10 is expressed in BAHN (Celestial Navigation) Co-ordinates and is best illustrated in Figure 2. When Lon = 180 the Z-Axis of the s/c points at the Centre of Mass of the Earth along the Line of Apsides. Lat refers to inclination of the Z-Axis to the orbital plane of the spacecraft. Positive Lat is upwards from the orbital plane and Negative Lat is downwards from the orbital plane. Introduction of Lat into the attitude of the s/c produces a very complex scenario, as the orbital plane is inclined 26 degrees to the earth's equator. Hence it would be best left at this stage. The terms Lon and Lat referred to in the N-Block are BAHN co-ords and are not to be read as Geographic co-ordinates.

THAT WORD ANOMALY

In order to clear up the problem that many people are having and have had in the past (including myself) in respect to the variant ANOMALY, I have written a small basic programme to produce the data in Figure 3 to allow you to draw Figure 4 to scale using the values of True Anomaly in degrees and range in kilometres. The orbit is symmetrical about the semi-

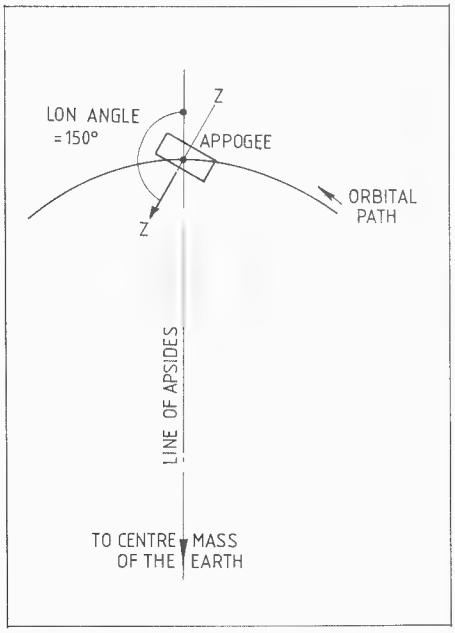

Figure 2 — Bahn Co-ordinates.

major axis should you wish to draw the whole orbit.

With the diagram in view let us now re-define the various terms.

MEAN ANOMALY: *"An angle that increases uniformly with TIME used to indicate where a satellite is along its orbit."*

The thing to remember is the operative UNIFORM TIME.

ECCENTRIC ANOMALY: *"Is an angle that is iteratively derived on a computer to solve Keplers equations for an ellipse".*

On Figure 4 the Eccentric Anomaly is conspicuous by its absence. However, draw a circle to encompass the ellipse, ie. diameter is semi-major axis. Now draw an angle equal to Eccentric Anomaly from the ellipse centre (with perigee being reference 0 Deg), to cut the circle. From that intersection draw a line perpendicular to the semi-major axis. It should pass through the corresponding data point on the ellipse. You can now sigh "thank heaven for computers!".

TRUE ANOMALY: "The polar angle that locates a satellite in the orbital plane drawn between the perigee, geocentre of earth and current satellite position and measured from the perigee in direction of satellite motion."

This should now be self-explanatory having used it to draw your ellipse.

Whereas in a circular orbit these three terms are one and the same, when it comes to an elliptical orbit they take on different values. Practically we continually encounter the term MEAN ANOMALY as this is the term that the ground controllers reference all operations to. This is the term used on telemetry blocks and bulletins. However the MA value disseminated is not an angle referenced in DEGREES, but an angle referenced to a base of 256. This reference is used because of the on board computer and direct linking to groundstations. Consequently the following applies:

Point	*MA (Degrees)*	*MA [256]*
Perigee	*0*	*0*
	90	*64*
Apogee	*180*	*128*
	270	*192*
Perigee	*360*	*256*

Time from Perigee in Mins T	Mean Anomaly Degrees MA°	Mean Anomaly [256] MA [256]	Eccentric Anomaly Degrees E	True Anomaly Degrees 0	Range from Geocentre km r
0.0	0.0	0.0	0.0	0.0	10516
30.0	15.4	11.0	35.1	64.4	13354
60.0	30.9	22.0	60.7	98.8	18480
90.0	46.3	32.9	80.0	118.2	23399
120.0	61.8	43.9	95.8	131.2	27677
150.0	77.2	54.9	109.5	140.9	31294
180.0	92.6	65.9	121.7	148.7	34301
210.0	108.1	76.9	133.1	155.4	36746
240.0	123.5	87.8	143.7	161.3	38672
270.0	139.0	98.8	154.0	166.8	40108
300.0	154.4	109.8	163.9	171.9	41077
330.0	169.8	120.8	173.6	176.8	41593
349.8	180.0	128.0	180.0	180.0	41689

Figure 3

Spacecraft Attitude LON	MA [256] at which antennae Earth Pointing
90	18
100	22
110	27
120	34
130	42
140	53
150	68
160	85
170	106
180	128
190	150
200	171
210	188
220	203
230	214
240	222
250	229
260	234
270	238

Figure 5: S/C LON vs MA [256]

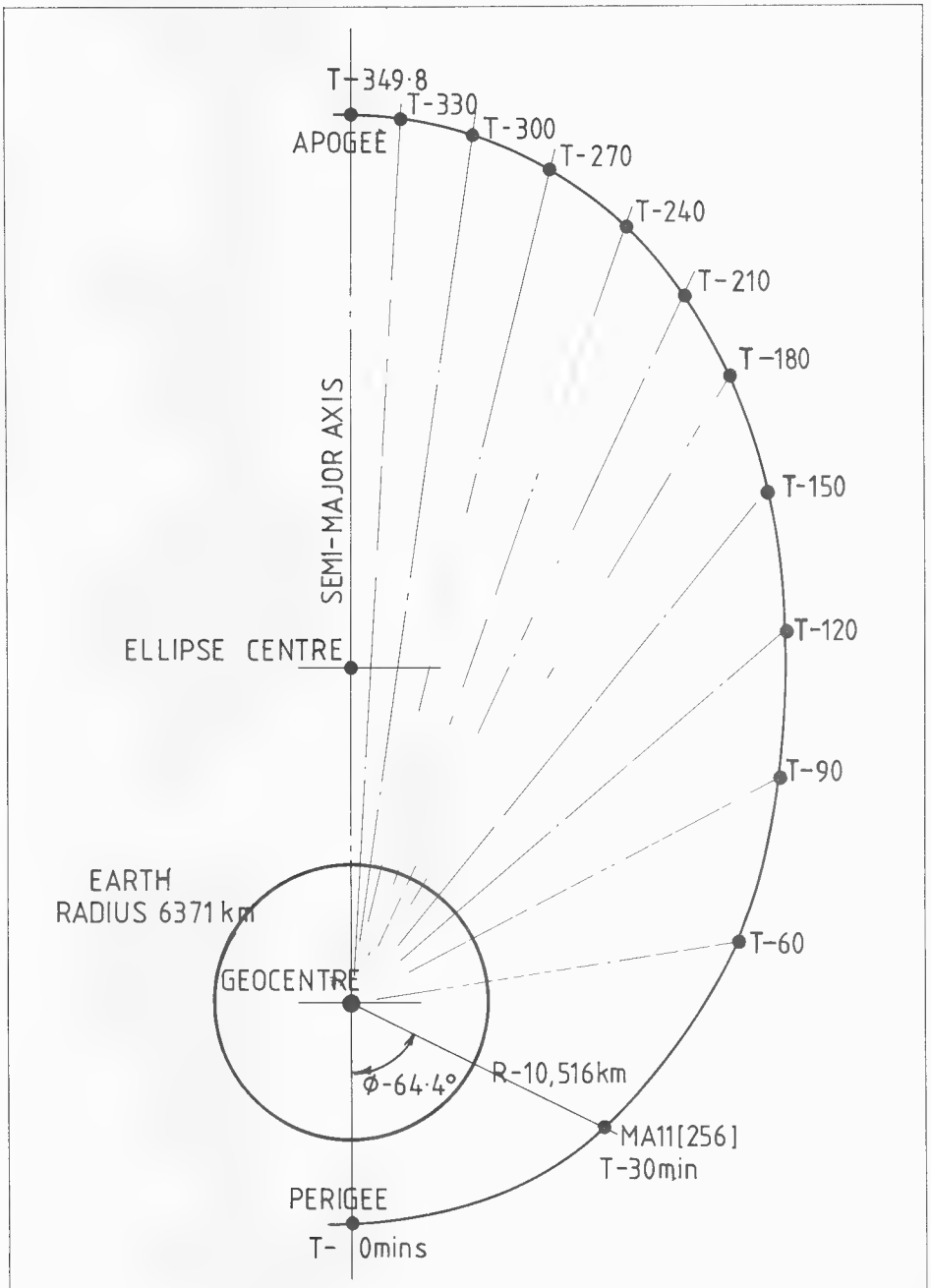

Figure 4 — OSCAR-10 Orbit to Scale.

Because the Mean Anomaly by definition refers to uniform increments of TIME, a useful tool to remember with OSCAR-10 is that 30 minutes equates to approximately 11 counts of MA [256], (actual value is 10.979).

REVISED SCHEDULE

Having digested all the above it is apparent that the ideal situation is to have the s/c at an attitude of 180 Lon. Thus at Apogee the antennae are pointing at the centre of the earth. However we have those eclipses to cope with and thus in the future considerable re-orientation in attitude will take place. Consquently it would be opportune to know when the antennae are earth pointing for the different values of Lon. This is made simpler when it is appreciated that the values of Lon equate to the True Anomaly, consequently the data in Figure 5 derived from another computer programme equates the earth pointing time of the orbit to the Mean Anomaly [256].

From Figure 5 we can see that from the 1st August the best operating times will be based around Mean Anomaly [256] = 214, and then from 1st September this will change to MA [256] = 60. It will certainly pay to listen to the AMSAT Australia nets, monitor the CW or RTTY Bulletins on OSCAR-10 for the latest attitude orientation to optimise your operating schedules. Regular communicators on OSCAR-10 will fully appreciate how signals are degraded when the antennae are off-pointed.

I trust that this tutorial has corrected all the anomalies in your thinking on elliptical orbits, if not drop me a letter with your specific problem.

de Colin VK5HI

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OSCAR 10 APOGEES
AUG / SEPT 1985

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	BEAM HEADINGS SYDNEY AZ DEG	EL DEG	ADELAIDE AZ DEG	EL DEG	PERTH AZ DEG	EL DEG
0th August										
212	1605	2304:18	-14	319					266	12
1st August										
213	1606	1043:49	-14	134	94	12	100	1		
213	1607	2223:21	14	309			259	1	271	20
2nd August										
214	1608	1002:51	-14	125	99	4				
214	1609	2142:22	-14	300	258	-2	264	9	276	28
3rd August										
215	1611	2101:23	-14	291	262	6	270	16	282	37
4th August										
216	1613	2020:24	-14	281	267	14	275	25	289	46
5th August										
217	1615	1939:26	-14	272	272	22	281	33	298	54
6th August										
218	1617	1858:27	-14	263	278	30	288	41	312	62
7th August										
219	1619	1817:28	-15	253	285	39	297	49	333	67
8th August										
220	1621	1736:29	-15	244	293	47	309	57	1	70
9th August										
221	1623	1655:32	-15	234	302	55	326	63	29	67
10th August										
222	1625	1614:33	-15	225	316	62	350	66	50	61
11th August										
223	1627	1533:34	-15	216	340	67	16	66	63	54
12th August										
224	1629	1452:36	-15	206	[illegible]	68	38	62	73	46
13th August										
225	1631	1411:37	-15	197	32	65	54	56	80	37
14th August										
226	1633	1330:38	-15	188	51	59	66	48	86	28
15th August										
227	1635	1251:07	-15	178	63	51	74	40	91	20
16th August										
228	1637	1210:08	-15	169	73	43	81	32	96	12
17th August										
229	1639	1129:09	-16	160	80	35	87	24	101	4
229	1640	2308:40	-16	335					256	-1
18th August										
230	1641	1048:12	-16	150	86	27	93	16		
230	1642	2227:42	-16	326					261	7
19th August										
231	1643	1007:13	-16	141	91	19	98	8		
231	1644	2146:43	-16	316					265	15
20th August										
232	1645	0926:14	-16	132	97	11	103	0		
232	1646	2105:44	-16	307			259	4	270	23
21st August										
233	1647	0845:15	-16	122	102	3				
233	1648	2024:47	-16	297	257	1	264	12	275	32
22nd August										
234	1650	1943:48	-16	288	262	9	269	20	281	40
23rd August										
235	1652	1902:49	-16	279	267	17	275	28	289	49
24th August										
236	1654	1821:50	-16	269	272	25	281	36	299	58
25th August										
237	1656	1740:52	-16	260	278	34	288	45	314	65
26th August										
238	1658	1659:53	-16	251	284	42	298	53	338	70
27th August										
239	1660	1618:54	-16	241	293	50	311	60	10	71
28th August										
240	1662	1537:55	-17	232	304	58	330	66	39	68
29th August										
241	1664	1456:57	-17	223	321	65	357	69	57	61
30th August										
242	1666	1415:59	-17	213	346	69	24	67	69	53
31st August										
243	1668	1335:01	-17	204	16	69	46	62	77	44
1st September										
244	1670	1254:02	-17	194	11	65	60	55	84	36
2nd September										
245	1672	1214:30	-17	185	57	58	71	47	89	27
3rd September										
246	1674	1133:31	-17	176	69	50	79	39	94	19
4th September										
247	1676	1052:33	-17	166	77	42	85	31	99	11
5th September										
248	1678	1011:34	-17	157	84	34	91	22	103	3
248	1679	2151:05	-17	332					256	2
6th September										
249	1680	0930:35	-17	148	89	25	96	14		
249	1681	2110:06	-17	323					261	10
7th September										
250	1682	0849:38	-17	138	95	17	101	7		
250	1683	2029:08	-18	314			254	-1	265	18
8th September										
251	1684	0808:39	-18	129	99	9	106	-1		
251	1685	1948:09	-18	304			259	7	270	26
9th September										
252	1686	0727:40	-18	116	104	2				
252	1687	1907:10	-18	295	257	4	264	15	275	35
10th September										
[illegible]	[illegible]	[illegible]	-18	286	260	12	266	2	261	44
11th September										
254	1691	1745:14	-18	276	26	20	275	31	288	53
12th September										
255	1693	1704:15	-18	267	272	28	281	40	299	61
13th September										
256	1695	1623:17	-18	257	278	37	288	48	316	68
14th September										
257	1697	1542:17	-18	248	284	46	298	56	345	73

SATELLITE ACTIVITY FOR PERIOD 30 MARCH TO 26 APRIL 1985

LAUNCHES

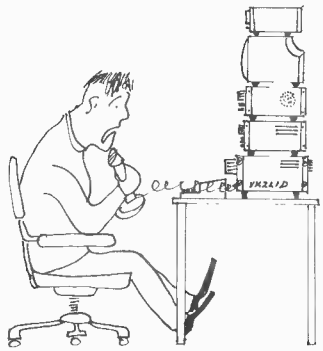
Number	Name	Nation	Date of Launch	Period mins	Apog km	Perig km	Incn deg	Initial Data Remarks
1985-								
027A	Cosmos 1644	USSR	Apr 3	92.2	415	349	70.4	
028A	STS 51-D	USA	Apr 12	92.4	464	319	28.5	See below
028B	Telesat 1	Canada	Apr 13	1432.3	35770	35653	2.9	From STS 51D
028C	Syncom IV-3	USA	Apr 12	92.4	464	319	28.5	From STS 51D
029A	Cosmos 1645	USSR	Apr 16	90.5	388	213	62.8	
030A	Cosmos 1646	USSR	Apr 18	93.3	441	426	65.1	
031A	Cosmos 1647	USSR	Apr 19	89.5	326	169	67.1	
032A	Cosmos 1648	USSR	Apr 25					
033A	Prognoz X	USSR	Apr 26					

On board STS mission 51-D, spacecraft 'Discovery', were crew members K Bobko, J Garn, M Seddon, J Hoffman, D Williams, S Griggs and C Walker. The payload included Telesat 1 and Syncom IV 3.

RETURNS

During the period 24 objects decayed including the following satellites:

1979-014B Corsa B	*Apr 15*
1985-017A Cosmos 1630	*Apr 23*
1985-027A Cosmos 1644	*Apr 17*
1985-028A STS 51D	*Apr 19*



"Can't afford any more gear just now, OM – I have a monthly payment due on every day of the month!" — VK2COP.

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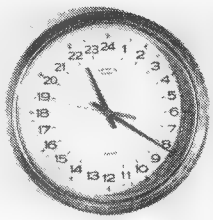

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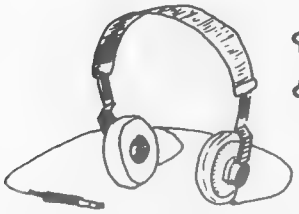


LISTENING AROUND

Joe Baker VK2BJX
Box 2121, Mildura, Vic 3500

I'm writing this in the pre-dawn hours of a late Autumn morning. I've already had a long sleep, and missed the Cocktail Net, and night-owls like Leo VK5GJ, Bronte VK5KV and Gordon VK5HM, all of whom live in what Gordon refers to as the "Perfect State of South Australia" — which never has floods or industrial disputes — where the weather is always perfect and where everyone lives in a state of eternal bliss. Gordon will have gone QRT by this time.

As I listen while typing, the long skip is on and at one end of "80" there are some Asians, the loudest being a hard-working and fast talking JA who keeps saying his call sign like an LP record, or an endless tape over and over again. My puny 18 watts from my standby gear (as the SB102 is out of operation) fails to "break" him so I leave him to it, and confine myself to the typewriter.

So let's have an update on what's been happening recently here. Living in this part of NSW — a long way from anywhere of note — and being an ex-serviceman, I was told of NSW transport concessions which entitled me to reduced fares on most Sydney transport — even the Harbour ferries — and one free annual journey by rail within any two places in NSW — but there was only one snag — I'm about 1046km (650 miles) from Sydney and almost 322km (200 miles) from any NSW railway station.

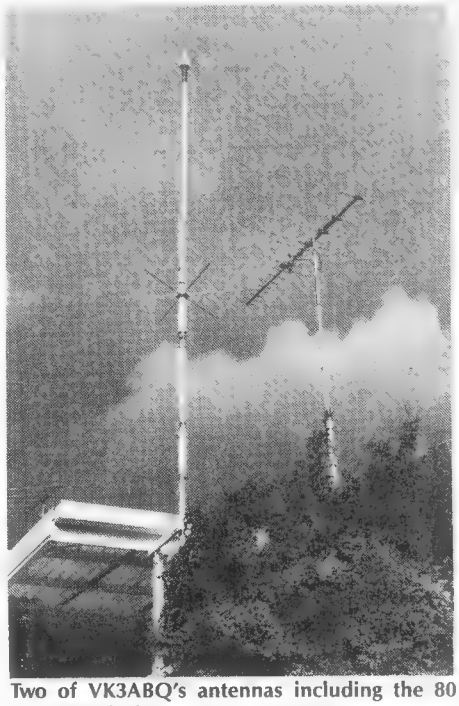
As I live at Buronga, in NSW, just across the river Murray and about 3.2km (two miles) from Mildura in Victoria, I was not too enthusiastic about what the NSW authorities had given me, and thus began a long battle lasting many years in which I badgered all kinds of people to have matters altered. Appeals to local politicians, and even the State Parliament of NSW were fruitless. Even the Victorian transport authorities to whom I also appealed gave me the same answer as their NSW mates — "Sorry, no can do because there's no reciprocal agreements between States" so I was getting nowhere fast. Eventually I got the concessions I was after. Now, I can occasionally get away from Buronga (NSW) by taking an occasional trip down to Melbourne.

That's what I did early in April. Because finances were tight (they always are with me) the plan was to spend two nights only in Melbourne — Monday night and Tuesday night, leaving Melbourne Wednesday night to arrive back to Mildura Thursday morning. The journey from Mildura is long and tiresome. I left by train at 9.25 pm Sunday night, arriving at Spencer Street Station about 6.30 Monday morning — after getting little or no sleep. Of course I had brought my FT208R with me.

Soon after booking into a private motel near the station, I was on the air from my room on the third floor, making good use of the Geelong, Macedon and Mt. Dandenong repeaters.

John VK3ABQ of Surrey Hills and I have had many contacts on my earlier visits to Melbourne, but something always prevented me from seeing John. So, almost as soon as I hit Melbourne this time, I phoned John, who then picked me up took me to his home where I spent a pleasant several hours, sharing a beer with him, inspecting his well-apportioned "shack", and photographing himself and his gear. It was an excellent day — thank you John for your hospitality which more than made up for the earlier times when we were unable to meet.

Another friend I have often wished to meet is Bob, who holds two call signs, VK3CCH ("Chicken, Chips and Hamburgers") and VK3BRW. John decided to drive me to Bob's work QTH. On arrival near the work QTH, John stopped his car in a short side-street off the main road, and decided to walk in one direction to find a street number, while I went in another direction. I got confused with the numbering system and walked about a kilometre in one direction, while John had not far to go before he found the place. I was completely lost, and although I had my FT208R with me, couldn't call John because he didn't have two metres with him. (John meanwhile, having found Bob's workplace, was told that Bob was unavailable because he was out on a job). John then returned to his car, to wait for me.



Two of VK3ABQ's antennas including the 80 metre vertical.

I seemed to be walking for an eternity up hill and down dale before calling into a place, where I saw a welder at work, to ask directions. The welder took off his mask and said *"you're going in the wrong direction mate — it's back up that way"* indicating the direction from which I had, so laboriously and with much perspiration, come. So I hi-tailed it back up a hill where I found John waiting for me. *"If Bob wants to see me the next time I am in Melbourne"* I said solemnly to John, *"he had better come and fetch me."* John's good driving got me back to my motel without incident, and after tea, I decided to go back to my room and see who I could catch on two metres. I found myself talking with VK3EW (VK3 "Electric Wireless") on simplex. We had a good old chin-wag, and made arrangements to meet the next day at what I thought was to be 10.30am.

As it so happened, apparently I mistook the time, which should have been dinner time outside the Melbourne Stock Exchange. I arrived about 10.35am and waited till just after 11.15am, and not meeting "Electric Wireless" thought that, being five minutes late, I had missed him and decided to give it away. I went back to my room, had a rest, went for dinner and decided to go and spend a few hours in the Botanical Gardens, by the side of the Yarra.

After taking some good pictures of the "BI-CENTENNIAL ARCH" near the Arts Centre and the lovely vertical tower above the Centre (is that tower just an ornament, or is it somebody's private antenna?) and armed with some cartons of milk, some potato cakes and fish, I decided to park myself and my FT208R on the lovely lawns. I put the FT208R in the

"That Tower" — maybe it is a radio antenna in disguise!! (and who owns the coil of wire in the top left corner?)

scanning mode. Eventually I settled on the Mt Dandenong repeater and spoke with a chap who said that he knew "Electric Wireless" personally and that if I would stay on the repeater, he would contact him as soon as "EW" finished work and let him know that I was listening. I maintained a listening watch and after a while heard "Electric Wireless" call me.

Now here's where I introduce Mr Murphy and his law which says that *"if anything is going to happen, it will"*. Murphy had decided to flatten my battery — so flat indeed that when I tried to respond to "Electric Wireless", the red indicator light on my rig lit about as dim as a candle on Mars as it would appear seen through the Mt Palomar telescope. What maddened me was that I could hear the other chap telling "Electric Wireless" that perhaps I had gone and got lost again.

There was nothing I could do, but to return to the motel (where I still had my luggage, having formally booked out earlier the same day), and ask the booking clerk if I could retrieve my luggage from the baggage room to get my home brew charger — "borrow" an office power point and put some fresh juice into my FT208R. Permission was given, but Murphy was still with me. In the claustrophobia and confusion of that office, I could not remember how to correctly connect up the charger, so it wouldn't work.

Well, having a flat battery, I couldn't even try to disrupt the train communications by operating rail mobile, as I did on a previous occasion. But who can tell what might happen when I again visit Melbourne, perhaps before the winter sets in?

Cheers to all and thanks for all the nice things you've said about "Listening Around" when I've spoken to you on the air.

AR

Share your story in AR ...

CONTESTS

Ian Hunt VK5QX
FEDERAL CONTEST MANAGER

P.O. Box 1234, GPO, Adelaide, SA 5001.

CONTEST CALENDAR

AUGUST

10-11 European CW Contest (Rules July AR)
17-18 Remembrance Day Contest (Rules July AR)
17-18 SARTG RTTY Contest
17-18 KCJ CW Contest (Rules this issue)
24-25 All Asian CW Contest (Rules July AR)
24-25 GARTG RTTY Contest

SEPTEMBER

14-15 VK Novice Contest (Rules this issue)
14-15 European Phone Contest (Rules July AR)
28-29 YLRC Italiano 'Elettra Marconi' Contest (Rules this issue)

OCTOBER

5-6 VK/ZL Oceania Phone Contest (Not yet confirmed)
12-13 VK/ZL Oceania CW Contest (Not yet confirmed)
26-27 CQ WW DX Phone Contest

NOVEMBER

23-24 CQ WW DX CW Contest

ALL CONTESTERS PLEASE NOTE THE FOLLOWING . . . .

CONTEST DISQUALIFICATION CRITERIA

A standardised approach is taken to the disqualification of logs entered in all of the contests which come under the direct control of the Federal Contest Manager appointed by the Federal Executive.

A perusal of these criteria will show them to be quite fair and well thought out. They are based on those used by the ARRL in administering their contests. It is suggested that you take note of this particular issue of the magazine for reference to these general rules in the case of all contests for the ensuing year. Details are as follows:

DISQUALIFICATION: An entry in WIA conducted contests may be disqualified if, upon checking of logs, it is necessary that the overall score be reduced by more than two percent. Score reduction does not include correction of arithmetic errors. Reductions may be made of unconfirmed QSOs or multipliers, duplicate QSOs or other scoring discrepancies. An entry will be disqualified if more than two percent duplicate QSOs are detected as being claimed for credit. For each duplicate or miscopied call sign removed from the log by the Contest Manager a penalty of deletion of three additional QSOs of equivalent value to the offending claim may be applied. The penalty will not be considered as part of the two percent disqualification criterion. If a participant is disqualified under these aforementioned provisions that operator will be barred from entering the contest for that particular mode on the ensuing year. eg. Disqualification from the 1985 RD Phone will prohibit an entry for the 1986 RD Phone, however participation in the 1986 RD CW would be allowed.

Logs which are very untidy, illegible or incorrect in layout to a major degree may also be disqualified. The call signs of disqualified participants may be listed in Amateur Radio magazine together with the contest results.

At the time of writing these notes I am visiting the country town of Ceduna in the far west of South Australia. Whilst on the way here I could not help but consider the benefits of being an amateur radio operator living in the country. So much more space is available for the erection of antennas. I had visions of large arrays, tall towers, vee beams and rhombics running in every direction. This surely would be great for both DX and international contest working. I do remember though one year, when I top scored in VK5 in the Remembrance Day Contest, my equipment set up comprised a 40/80 inverted vee and a dipole for 20 metres both supported by the ventilation pipe at the back of the house and fed by a Collins KWM2A and operating without any linear amplifier. It is certainly possible to achieve excellent results with a simple installation and no doubt operating technique must play a very large part in this. Still, large antenna installations and the often nice low local noise level conditions, often found in the country, would be very nice not to mention the lack of high level local QRM with the nearest amateur being well over 322 km (200 miles) away. Coming to the country does not mean that one necessarily leaves behind the benefits of modern life. These notes are being prepared on a computer controlled word processor owned by my daughter and son-in-law. Such modern magic means that I can correct all my typing mistakes before printing out the result, (well that is in theory anyway) and thus the typesetters will not have to put up with all the corrections made using white out and my rather old typewriter can stay in the car where it was stowed just in case I couldn't cope.

As this is my first visit to Ceduna I will be taking the opportunity to have a look at the Overseas Telecommunications Commission Satellite Earth Station. Perhaps this may whet my appetite again to do some amateur satellite operation. Incidentally, such a thought takes me back to somewhere about 1962 when I recorded signals from the first OSCAR satellite using a 16 Yagi steerable array at the NASA Satellite Tracking and Data Acquisition Network Station at Island Lagoon near Woomera. It was most exciting to hear the 'HI' being transmitted by this forerunner of the much more useful amateur satellites and I feel sure that not very many of us foresaw just what great marvels were in store.

The previous comments may seem not connected with the subject of contesting, however my belief is that all our experiences can benefit us in many ways should we but take the opportunity to use them and apply them in the right manner.

As you read this column you will probably be close to preparing your station for the 1985 Remembrance Day Contest. I hope that you will approve of the latest changes to the rules and also that you have studied them carefully. I would also strongly recommend that you look at the matter of preparing your paper work in advance, particularly the 'check' sheets for each band. I suggest that you look back at the Example Contest Check Sheet published in this column in the December 1984 issue of "Amateur Radio".

I have been provided with a copy of rules for the 'Keymen's Club of Japan' (KCJ) Single Operator CW Contest and also the YLRC Italiano 'Elettra Marconi' Contest. You will notice that the KCJ Contest clashes with our Remembrance Day Contest. Perhaps this will mean somewhat more QRM in the CW portions of our bands. Whilst these contests would probably not be considered as being major events on the calendar I have provided the rules for your interest.

Our major Australian event for next month is the VK NOVICE CONTEST as indicated in the calendar on 14th and 15th of September. The rules for this contest are basically unchanged from last year. I would anticipate that, as usual, there will not be very many entries in this contest coming, as it does, right on top of the Remembrance Day Contest. If my intentions come to fruition the 1986 Novice Contest will probably be held in the month of June. It is somewhat unfortunate that it was not possible, despite my efforts to achieve change in this way, to have the date of this contest moved for 1985.

With the Novice Contest comes the end of the major contests organised by me on behalf of the Wireless Institute of Australia for the year. The only other major contest remaining for the year is the VK/ZL Contest which is separately organised. I hope that you have enjoyed the contests provided for your benefit this year and that you will continue to support these contests next year. In the intervening period I will be kept quite busy checking logs, preparing certificates and carrying out the various other tasks required of the Federal Contest Manager as well as preparing the notes for this column. I will certainly be interested in hearing more comment and opinion from you should you feel inclined to write and express your ideas on the contest scene.

VK NOVICE CONTEST, 1985 — RULES

CONTEST PERIOD:- From 0800 UTC 14th September 1985 to 0759 UTC 15th September 1985.

OBJECTS OF THE CONTEST:- To encourage contest operation of amateur radio stations in Australia, New Zealand and Papua-New Guinea with special emphasis on contacts with novice and radio club stations.

STATIONS ELIGIBLE:- Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas are permitted to be worked or entered in a log for the purposes of this contest. Except for radio clubs, no multi-operator working is allowed. Stations in the same call area may contact each other as well as contacting stations in other call areas.

CONTEST BANDS:- All operation must be confined to within the novice frequency sub-band allocations in the 10, 15 and 80 metre bands. No crossband operation is permitted.

MODES OF OPERATION:- Only phone or CW may be used. In the CW mode operation must not exceed a speed of TEN WORDS PER MINUTE. This is to encourage the use of CW by all operators and to allow improvement in this mode by those operators who do not usually practice same.

CONTEST SECTIONS:- (a) Phone — Novice / Full Call. (b) CW — Novice / Full Call. (c) Listeners.

SCORING:- Transmitting Entrants: For contacts with a novice station — five points. For contacts with a club station — ten points. For contacts with a full call station — two points.

Listener Entrants: For novice / novice contact — five points. Novice / full call contacts — two points. Full call / full call contacts — two points. Any contact with a club station — ten points.

CALL PROCEDURE:- For phone operation call 'CQ Novice Contest' and for CW operation call 'CQ N'.

CONTACTS:- Any station may be contacted only once per mode per band.

NUMBER EXCHANGE:- On phone, stations must exchange a serial number comprising an RS report followed by three figures. These figures must commence with 001 and increase sequentially by 'one' for each contact up to 999. If 999 is reached the serial number is to revert back to 001 and the sequence recommenced. For CW, stations must exchange a serial number comprising an RST report followed by three figures on the same basis as described above for a phone contact serial number. Radio club stations must ADD THE LETTER 'C' following the serial number.

LOG ENTRIES:- Each log sheet should be laid out such as to provide columns in the order given as follows: Date / UTC Time. Band. Mode. Station Contacted. Serial Number Sent. Serial Number Received. Claimed Score. Total Claimed Score should be shown at the bottom of the Claimed Score column for each page. Each log sheet must also be endorsed at the top 'VK NOVICE CONTEST, 1985'.

FRONT SHEET:- A FRONT SHEET must be attached to each log entered and must carry the following information: Name of Operator. Address. Call Sign. Section Entered. Claimed Score.

DECLARATION:- The front sheet must also carry a declaration which states that "I hereby certify that I have operated within the rules and spirit of the Contest". Each entry must carry the signature of the licensed operator of the station and be dated accordingly. In the case of club stations the entry must

be signed by a responsible officer of the club committee or a licensed operator delegated by the committee to do so. In the case of multi-operator stations the call signs of participating operators must also be shown on the front sheet.

REGULATIONS:- All stations participating in the contest must be operated within the terms of the station licence and applicable regulations.

SUBMISSION OF ENTRIES:- Logs are to be forwarded to the Federal Contest Manager, Box 1234, GPO, Adelaide, SA. 5001. Envelopes are to be endorsed 'Novice Contest' on the front outside. Entries must be posted so as to reach the box number no later than 28th October 1985. Any entries received later than this date may be used as Check Logs only.

CERTIFICATES:- Certificates will be awarded to the top scoring entries in each section at the discretion of the Federal Contest Manager and to any other entrant where meritorious operation has been carried out in the opinion of the Contest Manager.

TROPHY:- The "Keith Howard VK2AKX Trophy" will be awarded to the Novice entrant with the highest aggregate score from both the phone and CW sections of the contest. This trophy is a perpetual trophy and will be held by the winner until such time as it is awarded to a winner of a subsequent Novice Contest. Should two or more aggregate scores be equal a decision will be based on a count back as to the greater number of novice stations listed in each log entry. Should such a count also be equal the log containing the greatest number of CW contacts will be preferred. In the event of a further tie under these rules the logs will be placed before a committee which will exercise a vote as to the neatest and most meritorious entry.

DISQUALIFICATION:- The Contest Disqualification Criteria as published in this issue of "Amateur Radio" shall apply. Any station observed during the contest as constantly departing from the generally accepted code of operating ethics may also be disqualified.

KEYMEN'S CLUB OF JAPAN (KCJ) SINGLE OPERATOR CW CONTEST

Object	To work as many amateur stations in as many Japanese prefectures as possible using Japanese CW bands.
Eligibility	Single operator amateur stations worldwide.
Period	Starts 1200 UTC Saturday followed by the third Sunday in August; ends 1200 UTC the Sunday 17-18th August 1985.
Categories	Single operator, CW only: a. All Bands, b. Single Band.
Contest Exchange	JAs — RST plus Prefecture Code. Others — RST plus Continent Code.
Invalid Contact	Contact with a multioperator station, crossmode or not CW, crossband, via repeater or satellite, out of Japanese CW bands (by JAs only).
Scoring	POINTS: One point for the complete contact with a station in Japan on each band. MULTIPLIERS: JAs — Forty-seven Japanese prefectures and six continents on each band. Others — Forty-seven Japanese prefectures on each band. FINAL SCORE: Multiply points by sum of multipliers.
Log Instruction	Log should indicate time in UTC, call sign and exchange. Multipliers should be clearly marked in the log only the first time it is worked on each band. Use a separate sheet for each band. The call sign of the entrant should be indicated in every sheet of the log. Each entry must be accompanied by a Summary Sheet.
Awards	Certificates will be awarded to the top through the third scorer in each entry category and the top scorers in each continent and Japanese prefecture who are ranked in the higher half of the whole entrants in each category. All scores will be published. It is available by 1 IRC (surface mail) or 7 IRCs (air mail) enclosed with the log.
Disqualification	An entry with more than two percent duplicate and/or invalid contacts left on the log will be disqualified. Violation of amateur radio regulations and/or the rules of the contest will cause disqualification. Decisions of The KCJ Contest Committee are official and final.
Deadline	All entries must be postmarked no later than the 31st October 1985 and mailed to: Nagashima Takayoshi JA7GAX 20-6, Kabasawayama, Imozawa, Miyagi-town Miyagi-gun, Miyagi-Pref. 989-32 JAPAN

REFERENCES

Japanese CW Bands

1.907.5 - 1.912.5 MHz	28.000 - 28.200 MHz
3.500 - 3.525 MHz	50.010 - 50.100 MHz
7.000 - 7.030 MHz	144.000 - 144.100 MHz
14.000 - 14.100 MHz	430.000 - 430.100 MHz
21.000 - 21.150 MHz	1.296.100 - 1.296.500 MHz

Japanese Prefecture Codes

AC Aichi	HS Hiroshima	MZ Miyazaki	SO Shizuoka
AM Aomori	IB Ibaraki	NG Niigata	ST Saitama
At Akita	IK Ishikawa	NN Nagano	TG Tochigi
CB Chiba	IT Iwate	NR Nara	TK Tokyo
EH Ehime	KA Kagawa	NS Nagasaki	TO Tokushima
FK Fukui	KG Kagoshima	ON Okinawa	TT Tottori
FO Fukuoka	KM Kumamoto	OS Osaka	TY Toyama
FS Fukusnima	KN Kanagawa	OT Oita	WK Wakayama
GF Gifu	KO Kochi	OY Okayama	YG Yamaguchi
CM Gunma	KT Kyoto	SA Saga	YM Yamagata
HG Hyogo	ME Mie	SG Shiga	YN Yamanashi
HK Hokkaido	MG Miyagi	SN Shimane	

Continent Codes

AF Africa	NA North America
AS Asia	OC Oceania
EU Europe	SA South America

Japanese multioperator stations can be identified by their call sign.

Prefix 8JI through 8J0 and 7JI	(ex 8J1ITU)
Suffix RL	(ex JA2RL)
Suffix of 3 letters originated by Y or Z	(ex JE3YAA, JH4ZBC)

THE ITALIAN YL RC "ELETTRA MARCONI" PROMOTES THE VIIIth INTERNATIONAL CONTEST 1985 TO CELEBRATE THE ETRUSCAN YEAR

AIM: To further activity between Italian YL stations and the rest of the world. QSO must be between Italian YL stations and Italian or Foreign YL or OM stations.

CATEGORIES: Single YL operator, single OM operator, SWL.

BANDS: All bands: 1.8, 3.5, 7, 14, 21 and 28 MHz on the usual YL contest frequencies.

PERIOD: From 1300 UTC Saturday 28th September 1985 to 1300 UTC Sunday 29th September 1985.

CALL: CQ YL/OM CONTEST for PHONE. CQ YL/OM TEST for CW.

REPORTS: RST with progressive numbers (start 001). Italian or Foreign members of RC will add RC to their reports to indicate they are club members.

SCORE: One point for each contact between Italian and ISO stations; Two points for each contact between Italian and European stations; Three points for each contact between Italian stations outside Europe. Each station may be worked only once each band. QSO must be phone/phone or CW/CW. The score is the same for phone and CW.

MULTIPLIERS: a) A multiplier of one for each DXCC country and call area of USA, Canada, Japan, and Australia on each band. b) A multiplier of FIVE each member of YL RC contacted on each single band. This multiplier is not valid for QSO between YLs of RC. For the SWL, one point for each Italian, ISO, or Foreign YL heard on each band.

FINAL SCORE: This is obtained by multiplying the sum of the QSO points by the sum of the multipliers (a) and (b) obtained on all bands.

LOGS: Logs must be sent no later than 31 October 1985, to the YL RC Award Manager I0VOK Olga Scolari, Via Conte Verde No 50, 00185 ROMA, ITALY. Separate logs must be used for phone and CW, and for each band, and a summary sheet must be added. Forwarding of the log means the acceptance of the present rules and the decisions of the Manager which are to be considered final.

PRIZES: There are plaques, medals and diplomas for the first classied in CW and phone in the following categories: YL members of YL RC, Italian and Foreign YL OM and SWL.

AR

MAGAZINE REVIEW

Roy Hartkopf, VK3AOH
34 Toolangi Road, Alphington, Vic 3078

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice. ( ) Computer programme.

QST. March 1985. 200 watt 23cm Linear. (C) Field Strength Meters. (N) International EME Competition. (G) DX Contest Awards Programme. (G)

RADIO COMMUNICATION. April 1985. RSGB National Convention. (G)

QST. May 1985. 435 MHz Solid State Transmitter. (C)

AMSAT-OSCAR NEWS. June 1985. AGM News. (G) High Level Transverter Output from the FT102. (P) Sattellite News etc. (G).

73 MAGAZINE. June 1985. RTTY Terminal Unit. (C) EM Exposure Dangers. (G.N.) Special RTTY Issue.

AMATEUR TELEVISION HANDBOOK. Revised edition (Nov 1984) General information, Circuits, SSTV, UHF Transmitters, Receivers Aerials etc. British Amateur Television Club.

PRACTICAL WIRELESS. March 1985. 430 MHz Yagi. (C) Practical ATV Techniques. (G) Radio Wave Propagation. (G.N.) Old Type Receivers, the R1155. (G)

AR

?

ARE YOU COMING . . . ?

The Wagga Amateur Radio Club is again hosting the Annual Convention of the Year, in a typical style that only Wagga can do.

Highlights include: Foxhunts with great prizes (possibly the National Foxhunt Championship), Trade displays, Vintage Engine displays, Astronomy displays, Vintage Radio display, Model Aero displays, Auction and Trading table and of course time for rag chewing along with conducted car tours for the sightseers.

The Dinner will be held at the Riverina Australian Rules Football Club with a sit-down three-course meal and entertainment.

We have three motels booked for the occasion plus accommodation at the site for a nominal charge. Caravanners welcome also with on-site power and amenities.

This Premium event is being held on Saturday 26th and Sunday 27th October 1985 at the Currajong Scout Camp, approx 9 km S/E of Wagga.

Please watch for the insert in AR August for full details de Jeff VK2KCL.

AR

AWARDS

Joe Ackerman, VK4AIX
5 Koomooloo Court, Mermaid Waters, Qld 4218

The '75' and '150' awards have certainly stirred up some interest in awards amongst amateurs and SWLs.

It is hoped that this interest will continue as many clubs have awards available. Club nets assist greatly in obtaining these awards.

Costs of awards vary greatly and for those interested there are awards for which no fee is required.

Bermuda — WA8 Award
Chile — CE 25-P Award
Finland — OH 500 Award
ARRL — A1-OP Certificate of Merit
White Rose Award
Canada — Vernon Winter Carnival Certificate of Merit
Canada — CW Operators of the British Commonwealth.

THE LAWRENCE HARGRAVE AWARD

This new award, sponsored by the Illawarra Amateur Radio Society measures 27 x 20cm. The background is light blue with the printing in royal blue. Also depicted are some of the inventions of Lawrence Hargrave, who was one of Australia's earliest pioneers in aviation.

The conditions for obtaining the award are: *VK stations require 10 contacts with IARS members. Overseas stations require 5 contacts with IARS members. Contact with the Club station VK2AMW is sufficient in itself for the award.*

A Club net is held each Sunday night at 1000 UTC on 3.560MHz +/−.

Applications must show: date, time, frequency, station worked and be forwarded to: *The Awards Manager, Illawarra Amateur Radio Society, PO Box 1838, Wollongong, NSW 2500.*

THE CRIMSON CRUSTACEAN CERTIFICATE

This is a new award printed on a yellow background, the centre piece depicting a crustacean in crimson with details also printed in crimson. The design is a joint effort by the members of the Gladstone Amateur Radio Club who must feel satisfaction with their endeavours.

The conditions for the GARC award are:

All contacts after 11/3/85 will count for the award.

1. *All contacts must be on the same band and in the same mode.*
2. *To qualify, a transmitting amateur must show evidence of a contact with:*
   a The Club Station VK4BPA.
   b 5 different member base stations.
   c 1 member station, portable or mobile.
3. *A SWL must show evidence of hearing the Club station as well as 5 members all on the same band and same mode.*
4. *Evidence in the case of clauses 2 and 3 will be certified copy of the log, stating call signs, times, dates, modes and frequencies.*

To assist amateurs and SWLs in obtaining the award a Club net is held each Thursday night on 80 metres at 0900 UTC.

The cost of the award is $2.50 or 4 IRCs.

Applications to be sent to: *The Awards Manager, Gladstone Amateur Radio Club, PO Box 1030, Gladstone, Qld. 4680.*

DIPLOMA JA 35.20

This award is sponsored by the Sakura Amateur Radio Club and requires contacts with amateur radio stations on the 35.20N parallel in Japan.

It is issued in three classes:

Class AA. all 13 prefectures
Class A. 10 prefectures
Class B. 5 prefectures

Prefectures are: Chiba, Kanagawa, Shizuoka, Yamanashi, Nagano, Aichi, Gifu, Shiga, Kyoto, Hyogo, Okayama, Tottori and Shimane.

QSLs are not required only GRC and the fee is 7 IRCs.

Applications to be sent to: *Tuyoshi Chashi, 62, Sakurai, Yoro-Cho, Yoro-gun, Gifu 503-12 Japan.*

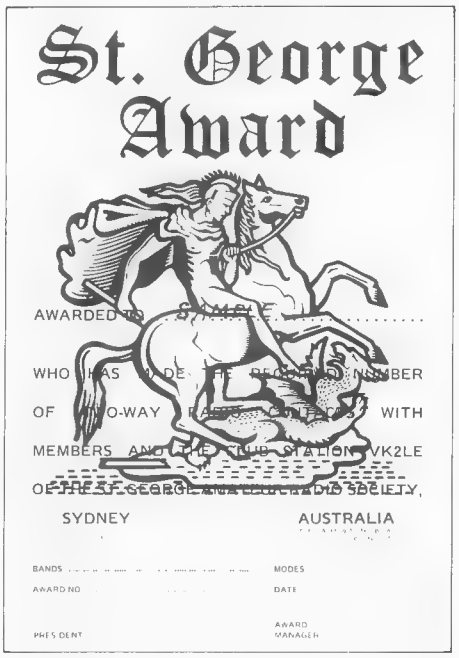
ST GEORGE AWARD

Overseas stations require five points which can be attained by the Club Station VK2LE being worth two points, SGARS member is worth one point on any band or mode.

Australian stations require ten points. Club Station VK2LE is worth two points, excluding via all repeaters. SGARS members worth one point. Any band or mode.

If all contacts are made on CW or RTTY modes, a special silver sticker will be attached to the Award Certificate.

Copies of log entries signed by the applicant and countersigned by an independant fully licenced amateur operator are to be forwarded to: The Awards Manager, St George Amateur Radio Society, PO Box 77, Penshurst, NSW. 2222, together with a remittance

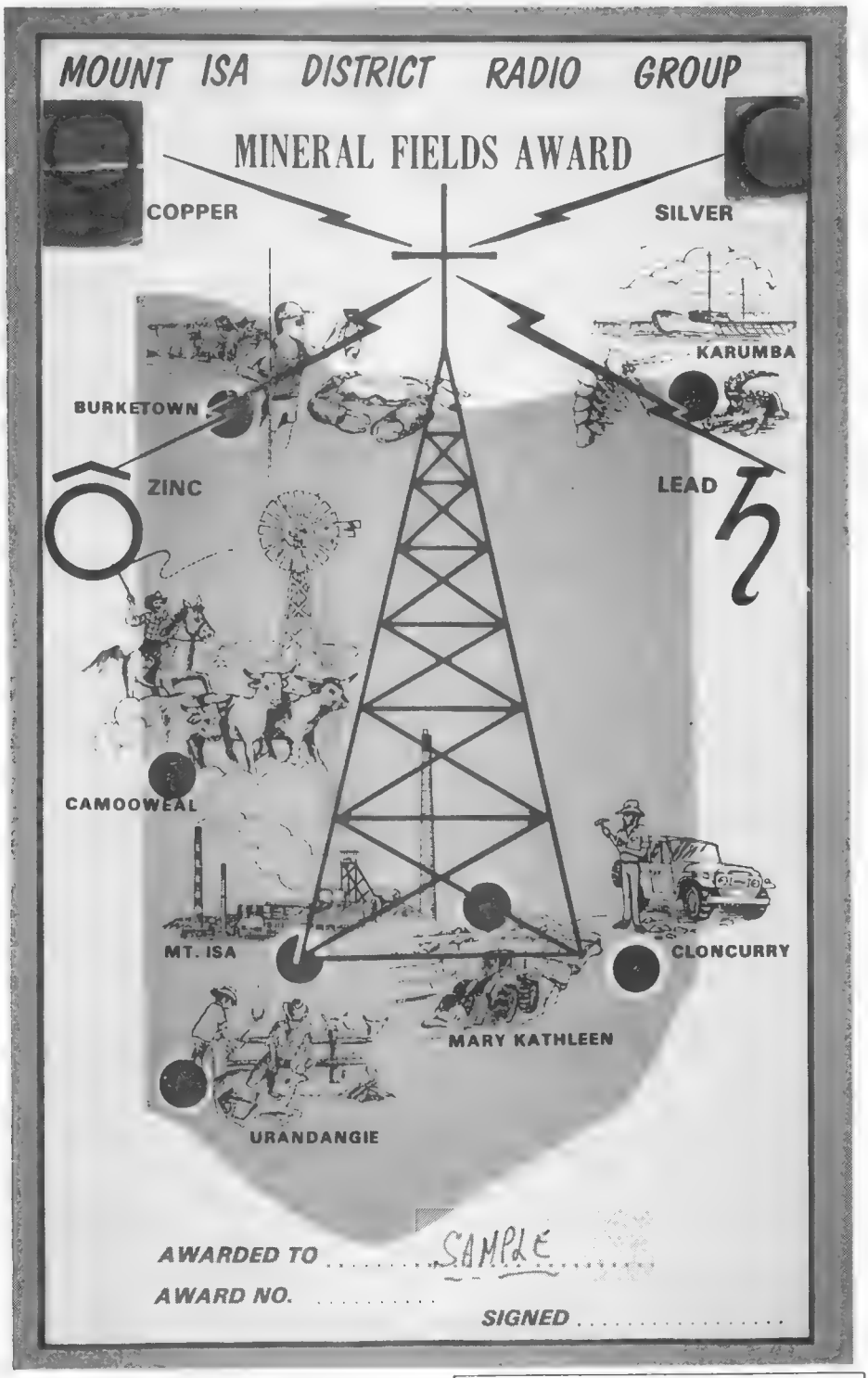


of $2 or equivalent made payable to The St Georges Amateur Radio Society.

QSL cards are not needed and the Award is available to all licenced amateurs and SWLs who have made the required contacts, or monitored as in the case of SWLs, on or after 1st January 1985.

LA BALSA AWARD

All the necessary arrangements have now been completed by the committee of the Summerland Radio Club for the La Balsa Award to be available shortly.



See page 49, June AR for details of the Mineral Fields Award.

Australian amateurs and SWLs are required to gain 15 points, DX stations require seven points.

The Club Station VK2AGH counts as five points, member stations count for one point.

A Club net is held each Friday night on 3.605 MHz at 2130 UTC.

Cost is $2.

Complete rules and requirements plus a sample copy of the Award will be published as soon as they are to hand.

AR

QSP

SUBTITLES ON ABC TV

Almost all ABC TV transmitters and translator stations will have supertext subtitles for the hearing-impaired.

Viewers with sets which have text decoders will see a number of programmes such as Minder, Palace of Dreams, Life on Earth, One by One and some children's series subtitled.

The service has been telecast in every capital city for some time and the ABC, after tests, is to extend it to rural areas.

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PARRAMATTA, NSW 2150

AR85

INTRUDER WATCH

Bill Martin, VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Opening the column for this month once again with thanks to the following people who have supported the Intruder Watch with reports of intruders heard on the bands during April 1985.
VK2BQS, VK2DEJ, VK2EYI, VK2PS, VK2QL, P Boskos, VK3BPB, VK3XB, VK3XU, VK4ADB, VK4AFO, VK4AHO, VK4AKX, VK4BG, VK4BHJ, VK4KHZ, VK4KZX, VK5BJF, VK5GZ, VK5TL, VK6AR, VK6JQ, VK6XZ, VK7RH. Many thanks for continuing support from these amateurs and SWLs.

SOME FAMILIAR — SOME NEW

April saw a large number of intruders reported, with broadcast stations accounting for 402 intrusions; CW stations accounting for 146 intrusions; RTTY stations accounting for 261 intrusions, and 20 using other modes, eg: R7B, etc. 114 identifications were heard, some familiar call signs, and some new. The harmonic of Radio 5AN, Adelaide, is still being heard on 3.565 MHz at the time of the April reports, and the woodpecker was reported on 7, 10, 14, 18 and 21 MHz. The infamous UMS (USSR origin) has vacated the 15 metre band, but, unfortunately, this is probably only his seasonal change, and if he sticks to past habits, will show-up back on 21.032 MHz at the start of our summer, **UNLESS he has vacated the amateur bands, as the USSR Administration has promised he would.** Very much activity with CW on 20 metres for April, with many call signs being copied.

TRAFFIC CEASED?

Last month I mentioned the commercial traffic being passed in the AMTOR mode on 14.069 MHz from a vessel which was currently in the Marshall Islands. W7JIE, the IARU Region 2 Amateur Interference Reporting System (AIRS) Director, writes that the FCC has monitoring stations on the frequency, and has opened a case against the persons responsible, and at the time of writing this column, I understand that the traffic has ceased.

This unauthorised use of the 20 metre amateur band was first detected by Syd VK2SG, and is a good demonstration of the help which can be given to the Intruder Watch by amateurs who use specialised forms of communication.

If you have facilities for RTTY, AMTOR, etc, and you come across like transmissions, please pass on the information to the Intruder Watch, who can try and do something about it. We need the help of all amateurs in this regard, as we don't all have the specialised facilities. More on this particular case later, when I receive more information from Washington.

LET'S GO TO IT!

Looking forward to the warmer weather, and hope to spend more time in the shack, as no doubt others will. Don't forget to make a note of the intruders you hear, and send it to your Divisional IW Co-Ordinator, who comprise: VK1ZJR, VK2COP, VK3JY, VK4KAL, VK5GZ, VK6XZ (find Bruce under VK6KVV), VK7RH, and VK8HA, all QTHR. See you next month, and I wish you all the best of DX.

AR

ALARA

Australian Ladies Amateur Radio Association

Jennifer Warrington VK5ANW
SECRETARY/VICE-PRESIDENT
AUSTRALIAN LADIES AMATEUR
RADIO ASSOCIATION

As you will have read last month Margaret VK3DML has written her last column for ALARA, at least for the time being. Margaret has done a magnificent job of writing this column over the past few years and I know that the Executive Committee of Alara would want me to say a very big thankyou to her. She will be a hard act to follow , but to soften the blow, before our new Publicity Officer is appointed, it is proposed that we shall have two or three "Guest" writers (after which — with apologies to the others — anyone will look good!)

By the time you read this the AGM will be imminent. The following have been nominated and have accepted (if elected) the positions indicated, so unless we receive two nominations for any of the positions the following will be finalised.

President	*Helene Dowd VK7HD*
Immediate Past President	*Geraldine Plant VK2NQI*
Vice President	*Marilyn Syme VK3DMS*
Vice President	*Jennifer Warrington VK5ANW*
Secretary	*" " "*
Publicity Officer	*Joy Collis VK2EBX*
Contest Manager	*Marlene Perry VK2KFQ*
Treasurer	*Valda Trenberth VK3DVT*
Minute Secretary	*Marilyn Syme VK3DMS*
Awards Custodian and Historian	*Mavis Stafford VK3KS*
Librarian	*Bev Hebiton VK6DE*
Souvenir Custodian	*Joyce Aldridge VK3VBK*
Sponsorship Secretary	*Jessie Buchanan VK3VAN*

State Representatives
VK3 Bron Brown VK3NTD
VK4 Margaret Schwerin VK4AOE
VK6 Poppy Bradshaw VK6YF

At the time of going to press VKs 5/8 and 7 were hopefully filled but unconfirmed. We are still looking for a State Representative for VK2 and would be pleased to hear from anyone who could take on this position. It is not an arduous job.

We were delighted to be the first association to be affiliated, Federally, with the WIA and look forward to a long and happy association. We were also pleased to participate in the Book Pack donation scheme (see June AR) and since then Margaret VK4AOE has presented a second pack to an Agricultural College near Dalby. Marlene and I really felt that we had got off lightly with the Regency Park presentation when we heard that Margaret had to present hers in front of the whole College! One of the questions that Margaret was asked, was, *"are there any amateur operators in the Somali Republic, as a couple of the students at the College come from there and find it hard to get news of home"* If there are any of you reading this who know of any amateurs in the Somali Republic would you please let Margaret or myself know.

Like Australia, many countries have a YL group. We know of groups in Italy, USA, Japan, Germany, Brazil, New Zealand, Great Britain, South Africa Netherlands, Canada and Austria. We have a very popular sponsorship scheme whereby an ALARA member (YL or OM) can pay to sponsor an overseas (usually) YL into ALARA. You specify a preferred country, if you have one, to Jessie VK3VAN and she does her best to match you with somebody on her files. In turn, the overseas YL generally then sponsors you into her local association. It is certainly an excellent way of making friends and learning more about the other girl and her country.

And my final word is actually our "Commercial" for the week. As Father's Day is only a month away, what about buying him one of our new sugar spoons with a fluted bowl and the ALARA emblem of course, so that he can sugar his own cup of coffee/tea while you work the DX! (and as they are only $4.50 you can buy yourself a keyring charm or teaspoon with the money you saved!).

AR

HALLEY'S COMET

It is probably the best known of all the comets and is due to return to visibility in 1986 for the first time in 75 years. Below is a diary of the comet from late 1982 to the end of 1986, as printed in The Propagator, June 1985 issue.

16th October 1982 — The comet detected for the first time since 1911 using the Mt Palomar Telescope at mag 24.2 and beyond the orbit of Saturn.

1984 — Halley moves inside Jupiter's orbit, spending most of the year between stars Orionis and Gemini.

January-March 1985 — Moving through Orion slowly, reaches mag 16 and becomes within photographic reach of large amateur telescopes. Evening object in the low NW sky.

April-August 1985 — Magnitude 15, moving slowly in Taurus, evening object low in the N sky.

September-October 1985 — Brightens to mag 12 in October, moves back into Orion and then Taurus. Remains low in the evening sky, above the northern horizon, heading west.

November 1985 — On 12th November it passes between a close pair of stars. At mag 8 it should be visible in small telescopes and powerful binoculars. On 16/17th it passes 2 degrees south of Pleiades and on 28th passes M74, on 10 mag spiral galaxy. It remains low in the northern sky each evening, reaching an altitude of 35 degrees and mag 7 at the end of the month and should be clearly visible in binoculars. On 27th it passes Earth, 91 million km away.

December 1985 — Moves through Pisces and on 22nd into Aquarius. On 26/27th it passes 1 degree south of Aquarii and should be visible to the naked eye, mag 5, to country viewers. Will not be visible in the city. Moves to NW evening sky and will be highest (50 degrees) above the horizon around 10th December.

January 1986 — Heading towards the sun rapidly, becoming lower in the evening sky. Hard to find after the 20th.

February 1986 — Halley passes the sun 86 million km on the other side of the 9th. Not visible until 15th and is low in the eastern morning sky. Bright with a good tail, reaches 30 degrees altitude on the 28th.

March 1986 — Halley is at its best this month with a bright long tail, visible in the city. Visible in the eastern morning sky, higher each day until nearly overhead at the end of the month. Moonlight will detract from its splendour during the first half of the month.

April 1986 — Moving rapidly, becoming low in the SW morning sky. After 2nd, visible in the low SE sky. Total lunar eclipse on 24th gives the last good viewing opportunity. Rises 50 degrees above the eastern horizon in the evening sky late in the month, fading rapidly.

June-December 1986 — Remains in Sextans, Crater and Hydra. Fades to mag 10-12 in June requiring a telescope to observe it.

AR

SPOTLIGHT ON SWLing

Robin Harwood, VK7RH
5 Helen Street, Launceston, Tas 7250

August has come around again and that means that it is time for the annual Remembrance Day Contest. This year it will be held on the 17th and 18th. SWLs are welcome to participate in the receiving section. Some even assist amateurs by acting as logkeepers. For further details and full rules, I would refer you to the July issue of this magazine. I wish you all the best.

XPO REPORT

Over the Queen's Birthday weekend, I was very privileged to attend the "DXPO", sponsored by the Australian Radio DX Club. It was held in Melbourne and provided unique opportunity for fellow DXers to meet and informally share their experiences within the hobby. It was, for me, an occasion where I was able to meet many of those who have been names on pieces of paper or spoken to on the air.

There were some talks on various aspects of the hobby, paying particular emphasis to antennas. There was also a talk on clandestine broadcasts from Central America by Bob Padula. As he said, the number of these stations seems to be variable, depending on the international situation. There was also a test for those keen DXers to identify station interval signals and/or foreign languages. I must state that I was somewhat surprised to be one of the winners of the competition. I would have expected others to fare well. Perhaps DXers are not paying enough attention to the identification of foreign languages.

These days, information is readily available on international stations with the times and frequencies of their foreign language output. By tuning into these regular transmissions, you will acquire the sound and feel of these languages. Then you will be able to identify a language from other broadcasters. As well, SWLs in Sydney, Melbourne, Brisbane, Wollongong and Newcastle have another aid in foreign languages. The Special Broadcasting Services air programmes in forty or so languages over MW. Also most international stations employ an interval signal prior to the commencement of their transmissions, so when you hear that signal or jingle, you will be able to identify the station although you do not know the language.

RADIO AUSTRALIA

As part of the "DXPO", we inspected the Radio Australia complex at Burwood. Located at the corner of Highbury and Springvale Roads, the complex is on an 18 hectare site, where it is proposed to have the domestic radio and TV studios plus an administrative centre for the ABC. Radio Australia was formally located in the central business district of Melbourne in an old biscuit factory. The modern building was finished in late 1982 and is on three levels with a gross floor area of 6800 square metres.

It is air-conditioned and has its own 650 kVA supply to ensure continuity of operations. The studios are on the upper levels with each section having studios conveniently close by. Most studios have an external view out on to Burwood. Visitors can look into the studio through a view window without entering the technical areas. The lower level is for amenities and plant.

It was interesting to observe the programmes going to air live and see many being pre-recorded for later broadcast. It was a personal highlight to meet with Keith Glover as he operated from Studio Nine with the English programming. I well remember hearing him compere the "Mailbag" programme when I first commenced listening on shortwave some 30 years ago. In all, there are 18 studios and control booths plus line switching rooms, cartridge preparation and tape duplicating rooms, all designed to meet the rigid regulations set out for broadcasting equipment.

While I was in Melbourne, there was concern about staff reductions within the ABC, including Radio Australia. Programmes were disrupted on both MW and Radio Australia while stop work meetings were held. Further programme cutbacks can be expected with possible further industrial action in the future.

FOLLOW-UP INFORMATION

A couple of months ago, I happened to mention the existence of a Racal User Group. I note in the March 1985 edition of "Practical Wireless" there is a new address for the group. It is now as follows:

Peter Barker G8BBZ,
15 Epping Green,
Woodhall Farm,
Hemel Hempstead, Herts. HP27JP.

Incidentally there have been some alterations to the DX programme information in the June issue. Swiss Radio International now broadcasts to Australia in English on 9.560, 15.305, 15.570 and 17.830 MHz. It is on at 0830 UTC and repeated at 1000. "The Swiss Shortwave Merry-Go-Round" is now aired weekly with the "Two Bobs" on Saturdays. Judy Cooper has replaced Barry Seeber on Radio Australia's "Talkback".

The Voice of America publishes a bi-monthly magazine called "Voice". It contains articles about life within the USA as well as details of upcoming VOA programmes. "Voice" also lists details of their foreign language broadcasts, which I find very useful. It is free for the asking from the VOA, Washington DC USA 20547.

Incidentally the VOA have two releases for this area. The first one is from 2200 until 0100 UTC on 17.820, 17.740, 15.290 or 15.305 (till 2400) MHz. The evening release is from 1100 to 1500 UTC on a variety of channels, but the best are 6.110 (till 1400), 9.770, 11.715 (till 1330), 15.160 MHz, all from their Phillipines site. You can easily hear their transmissions directed to the Middle East and Africa from 0600 UTC on 7.320 MHz.

While we are on schedules, here are the frequencies and times for several major international stations beaming to Australasia. Radio Sweden Int'l in English is on 15.115 MHz daily. Radio Japan in Tokyo, currently celebrating it's 50th anniversary, has announced it's programme schedules until March 1986. To Australasia it is on from 0845 till 0945 UTC in English. Radio Norway Int'l normally broadcasts in Norwegian, but it has a weekly English and Spanish programme on 17.740 with English at 1000 and Spanish at 1040 UTC. The rest of the week, Oslo broadcasts in Norwegian on that channel at that time. Radio Budapest has re-scheduled their DX programme to Mondays as from April. The times for their English programmes to Australasia are from 0930 till 1000 UTC on 17.710, 15.220 or 9.835 MHz. The Austrian Radio from Vienna beam to Australia at 0700 on 11.840 and at 1000 on 15.270 MHz. English programmes are in a thirty minute block.

IMPROVEMENT??

Conditions of late have been extremely poor to say the least. I have never heard such poor propagation in my life. The maximum usable frequency (MUF) has been as low as 6 MHz in our evening hours. In the daylight hours, it rarely goes above 17 MHz. With spring coming up next month, I expect some slight improvement in the evening hours.

While we are on amateur radio scheds, I am prepared to have chats on-air with those interested in SWLing. I would suggest Wednesdays on or about 3.595 MHz plus or minus QRM after the Intruder Watch Net concludes around 1100 UTC. Please feel free to join in.

Well, that is all for this month. All the best in the "RD". Good listening and the best of 73! Robin.

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PLEASE RING AFTER HOURS FOR STOCK SITUATION.

5 AMBLECOTE CRESCENT, MULGRAVE, VIC. 3170

AR85

WICEN NEWS

Ron Henderson VK1RH,
FEDERAL WICEN CO-ORDINATOR,
171 Kingsford-Smith Drive,
Melba, ACT, 2615

WICEN CALLING FREQUENCIES

As a result of a motion passed at the recent Annual Convention the following HF WICEN calling frequencies have been adopted.

3.600 MHz	*18.150 MHz*
7.075 MHz	*21.190 MHz*
10.115 MHz	*24.950 MHz*
14.125 MHz	*28.450 MHz*

It is only necessary to keep these frequencies clear when there is a WICEN net operating on them, at all other times they are available for general amateur usage.

Calling frequencies are frequencies on which communications will originate; once established, nets may change frequency due to local conditions or practice, interference and other factors. Also it is not expected every division will adhere rigidly to these frequencies for training and liaison nets as local conditions may make them unsuitable in some parts of Australia.

WICEN MANAGEMENT

WICEN, by its very title, implies an affiliation with the WIA and in most divisions WICEN is managed by a sub-committee of the divisional council. Matters such as whether all WICEN members must be members of the WIA (perhaps for insurance cover?), the chain of command for WICEN, funding of WICEN and its level of representation and autonomy are all divisional matters. If your WICEN group has not got a clear statement of its status, responsibilities and conditions under which it functions I recommend you obtain this information through the divisional co-ordinator. Some useful guidelines were provided in the AR September 1981 WICEN column. Divisional councils, working through their divisional co-ordinators, must establish clear, sensible, yet not overly constraining conditions under which WICEN can operate. The dichotomy between bureaucratic control by council and a wish to 'get on with the job of communicating' unfettered by unnecessary constraints must be recognised and a healthy working balance struck. Council must realise WICEN operators wish to communicate for their clients, and WICEN personnel must acknowledge that they are involved in only one facet of our extensive hobby.

In summary if you do not have terms of reference, such as divisional rules or by-laws or a written statement of authority negotiate one and work within its conditions.

LAST SUMMER'S ACTIVITIES

Now that the busy season of last summer is behind us what about a few short reports on WICEN activations? By sharing your experiences and perhaps lessons learned with others we can all become better emergency communicators. What about it? Let's hear from you.

AR

PAKENHAM SHIRE WICEN GROUP

Don Jackson VK3DBB
3 Gardenia Street, Pakenham, Vic. 3810

On the 23rd May, the Group assisted the Narre Warren Rotary Club in the running of its annual TWO IN ONE SCENIC STAMPEDE FUN RUN, which followed similar runs in 1981, 1982, 1983 and 1984. So far the Club has raised over $10,000 for the Anti Cancer Council of Victoria by these runs.

The WICEN operators provided mobile communications facilities at nine different points around the 20 km course, with some hand-held units being used around the start finish area. Whilst a great deal of routine traffic was passed, fortunately no emergencies or problems occurred with the runners. The exercise proved very useful and successful, with all stations being able to contact each other clearly. The frequency used was 146.500 simplex, and the Group would like to thank other amateurs for keeping clear of the frequency whilst the exercise was on.

The amateurs who took part in the exercise were: *VK3s: AX, DGS, TX, NNU, ZFT, DBB, BGY, YFC, ZYK, ATQ, KDS, BVA, YPK and BAF.*

Any amateur operator in the area who would like to assist in this valuable community service could contact Don Jackson at the Shire Offices at Pakenham, phone (059) 411 011, and would be made very welcome.

The value of WICEN has been recognised by all disaster combatting authorities, and the Shire of Pakenham is one municipality which has made specific provision in its DISPLAN for WICEN to be called in if and when a disaster occurs. **AR**

MIDLAND ZONE WICEN

Don Hogg VK3XBL
WICEN CO-ORDINATOR MIDLAND ZONE.
Box 155, Kangaroo Flat, Vic 3555.

Unfortunately it is always the lot of the busy people that are supposed to contribute to various activities. My arm is currently being twisted up my back at a great rate of knots to contribute to this column after repeated requests have not produced any results. So here are some of the experiences of the Midland Zone WICEN group.

Our activities started last November with data transmission tests for the CFA continued on to the Great Victorian Bike Ride, revisited Maryborough for the aftermath of the bush fires and found a fowl plague on our back doorstep at the same time we were involved with the Lusty Mallee Rally. So from all this what have we learnt and what can be shared through this medium.

Our first lesson came from an unexpected area (as they all do) but certainly changed our attitude of complacency. The Bendigo repeater has a good coverage and it was anticipated it would be very useful for our two days of the Bike Ride communications. This was fine for day one but we were shocked to find that Maryborough was a dead spot for the control location for the second day. We believe possibly because of the shadow of the tower the repeater aerial is on (not confirmed yet). Naturally we were ready for this situation when, with Ballarat, we revisited Maryborough for the fires and we set up a relay point at a high spot in the town.

Lesson two is a result of the Maryborough fires and the Mallee Rally where in both situations we were operating portable in other vehicles using magnetic base aerials and some handhelds. Unless there is absolute saturation coverage of the area you need at least ten watts output to work effectively as a mobile where the distances are beyond about 15 km radius. Our experience is that handhelds are not always effective to ensure good communications when used as mobile portable sets.

One lesson that follows on from the last is that there is a need to check the power source in any vehicle you may be going portable in. Recently in the fowl plague exercise one of our operators plugged into the cigarette lighter socket for power to his power pack for the handheld. He decided something was wrong when the power pack became very warm and strong odours were also evident. The vehicle was a diesel van with 24 volt supply. Fortunately the regulator in the power pack tolerated the 24 to 9 volt difference long enough for him to unplug and no damage was apparent.

So much for the handy hints the real lessons came when the Midland Zone were landed with simultaneous exercises at the beginning of June. We had a request for assistance from the Department of Agriculture in combatting the outbreak of fowl plague in the Bendigo area which continued over the long weekend in June when we were committed to running the communications for the Mallee Rally. A protracted exercise going more than two or three days needs a lot of preplanning and clear guidelines if effective communications are to be provided and the tolerance of friendships and relationships is not to be taken to breaking point. As Co-ordinator I am certainly the wiser from this bizarre happening and the need for all members of the team to communicate with one another about their feelings and the sharing of the tasks of planning. No one or two persons can effectively run protracted exercises without continual debriefing meetings — unfortunately one of our downfalls on this occasion.

The Mallee Rally was a different experience and one of enjoyment even though there was much fear and trepidation when organising it (albeit with good liaison) from a great distance without having previously been involved or having seen the location. From comments from previous people involved it was evident that there were some dead spots. To overcome this we planned to use our repeater to saturate the general area but this fell through owing to the Department of Agriculture disaster. With 24 hours notice George VK3AGM was set the task of coming up with an alternative. We discussed the principle of a 10 metre link to the dipole we already had installed 42 metres (140 feet) up on a local tower. The result from George was a 6 metre link with the squelch operating a relay to turn the two metre transmitter on for transmission of the audio on to 2 metres.

It worked well with minor difficulties but we believe it would be a better system placed half way into the area of operation. The command centre was some 7 to 10 km from Sea Lake where we had our aerial and the terrain seemed to impede the link without 3 element beams. Our area of operation was in the opposite direction to Sea Lake for some 30 km. This system also gives the opportunity to operate two channels on the same frequency if the link is remote from the base and the other transmitter is located, say at the base station. In fact at times we were operating direct on 2 metres when the link misbehaved for some unknown reason.

The success of the Mallee Rally was due, in part, to the many operators who had been there previously and this made the allocation of duties an easier task than if we had a large number of newcomers. The social gathering around the barbeque each evening was beneficial to the operation and gave the opportunity to discuss problems and share those rare experiences that only happened in front of your check point. We were mystified for quite some time about a dune buggy resting in the lake and the bogged brand new 4WD trying to recover it. We have a sneaking suspicion that both vehicles may belong to a Collins Street farmer type.

As I was on the last sweep vehicle to return at the end of the Rally and did not get the opportunity to say farewell to many of the team I would like to express my sincere thanks to all who were part of the team and to say I enjoyed the new friendships that were made at the Mallee Rally.

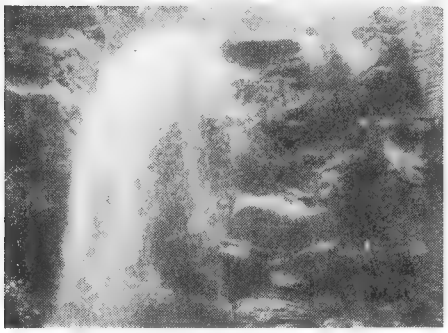
This article about all the problems we experienced may give the connotation that the communications were not all that crash hot but the reverse is the case. In all the exercises we have been on in spite of the above problems we have been able to provide good communications and have won some commendation for our services. The problems experienced only served to make us more aware of the problems for the next task and to learn from our mistakes.

The Zone has acquired four computers for mobile use to transmit information in WICEN operations. As some would know we developed a tone board based on the Kansas City Standard for the transmission of data and Ron VK3YHV the designer will use this board in the computers with software control of the facilities. We already have software design of the WICEN message format and have used this in the tests with the CFA. We believe much more effectiveness will be achieved in the future if this medium of message handling is used.

Left: Aerial array at the command centre. Left — 6m beam for the link to the remote 2m transceiver. Centre — 27MHz for listening to the recovery vehicles. Right — Mast with 80m dipole and direct 2m Slim Jim.

REGION 7 EXERCISE . . . OTWAY SURVIVAL

Barry Abley VK3YXK
Exercise Co-ordinator.



Upper Kalimna Falls.

The SES has called for WICEN support, to provide portable (pedestrian) communications at the scene of an accident.

A child has fallen from the Upper Kalimna Falls, in the Lorne Forest Park, in the Otway Ranges.

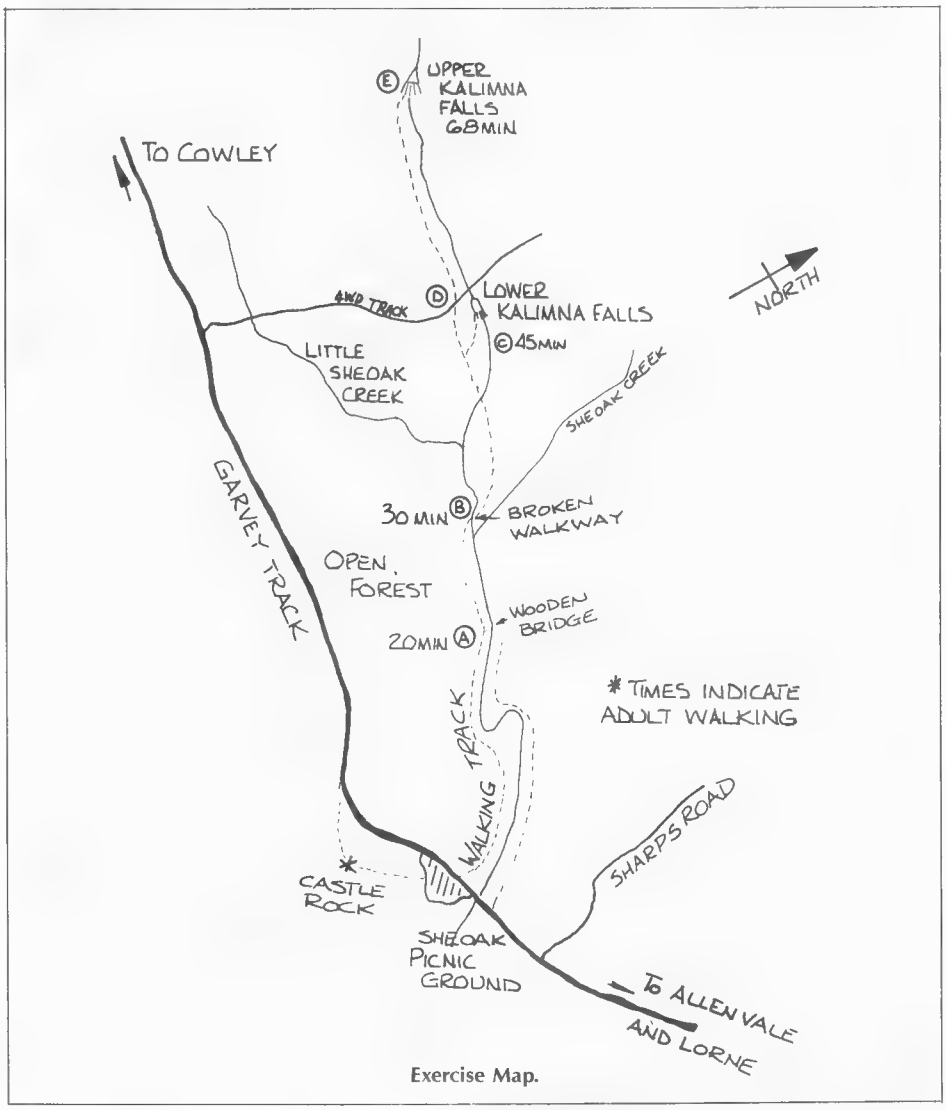
The child must be diagnosed by a doctor because of possible spinal injuries sustained in the fall. The patient is then to be carried out to a convenient location, to be picked up by helicopter for transportation to hospital.

This is the scenario which confronted Zone 7 WICEN operators during exercise "Otway Survival", which took place on Sunday 9th June, in the forest behind Lorne. Twelve operators aged from 16 to 60 were divided into four groups, each with an important task if the victim was to be safely brought out of this rugged location.

The groups were required to undertake a variety of tasks including, moving to the accident site to relay the doctors diagnosis, setting the tapes and fire a smoke flare to assist the helicopter. A helicopter group was required to deliver a Bradford Frame stretcher to the accident site. A net control and support group were also required.

A cool overcast day and the Otway Ranges setting lent authenticity to this most successful exercise. Communications were achieved using hand-held 2m transceivers with each group, an FT480R as net control, and Group 1 carried an IC22S, battery and antenna to the scene of the accident to ensure reliable signal strength.

This exercise has ensured that the operators in Zone 7 are able to confidently work in the Otways, which constitute a large portion of their zone.



Exercise Map.

ORGANISING FIELD EXERCISES

A Discussion paper (WICEN)

Mark J Stephenson VK3PI
VK3 REGIONAL CO-ORDINATOR
46 Fore Street, Whittlesea, Vic. 3757

OBJECTIVES: At the completion of this session, participants should be able to:

Plan, co-ordinate and implement training exercises;

Effectively respond to a request for communications support in a fast, efficient and confident manner, based on proper planning practices.

INTRODUCTION

There are a number of factors to consider in planning field exercises, and in this session I will attempt to present and discuss the more important issues.

The implementation of a field exercise can be broken into three finite stages of planning:

(a) *PRE-EXERCISE — involving liaison with services involved in the exercise, public relations, administrative preparation to determine manpower requirements, equipment requirements etc.*

(b) *EXERCISE — administration and organisation of networks, liaison with all services, rostering etc.*

(c) *DEBRIEFING — analysis of effect of exercise, report on ability of WICEN to handle specific tasks.*

WHAT IS COMMUNICATIONS?

It has been said that there are very few human activities we:

* *value more*
* *understand less*
* *perform worse*

than person to person communication.

Definition:

"WHERE A MESSAGE FROM ONE PERSON TO ANOTHER IS RECEIVED AND UNDERSTOOD BY THE SECOND PERSON EXACTLY AS THE FIRST PERSON INTENDED IT TO BE."

Communications can be divided into three broad categories:

1 *Telephone, telex, radio or any other form of communication relevant to field operations. Also includes communication by members of WICEN with members of the public, or members of other services, administrators and the public;*

2 *Non-emergency communications involving spoken, written or machine communications in support of administration or operations;*

3 *Informal communications between members of WICEN, mostly in spoken form.*

It must be remembered that the most expensive and complex piece of equipment is useless unless users are adept in a technical and communications sense. A member of WICEN who does not communicate adequately fails to gain comparable communication in return, and risks alienating people with whom he is liaising.

RESPONSIBILITIES OF WICEN PERSONNEL

Each member of WICEN, regardless of position within the structure of the system, has responsibilities. All members of WICEN have important roles to play in counter disaster operations, and of particular importance are the roles of Local and Regional Co-ordinators.

Before planning any exercises, one must be aware of the responsibilities as a Co-ordinator, be it Local or Regional.

REGIONAL WICEN CO-ORDINATORS

To promote an awareness of WICEN within their region among amateur radio operators, clubs and counter disaster authorities.

To establish a good liaison with the regional operations officers of the State Emergency Service, and/or relevant regional officers of other authorities.

To ensure that each Local WICEN Co-ordinator in the region has good liaison with the local SES controller, local Police Inspector, and/or other counter disaster organisation staff.

To liaise with the Local WICEN Co-ordinators within the region and to ensure that each is active and constructive in their approach to emergency situations.

To maintain records of Local WICEN Co-ordinators and operators within the region, with all relevant details.

To ensure all WICEN operators are trained and exercises in emergency procedures under the guidance of their Local WICEN Co-ordinator.

To maintain amicable relations with counter disaster organisations, and in doing so inform them of the existence and capabilities of the Local WICEN groups.

To monitor WICEN operations in an emergency and assist where necessary.

To be conversant with regulations pertaining to emergency communications as per the DOC handbook.

To ensure that the State Co-ordinator is informed of any changes in regional organisation of the network.

LOCAL WICEN CO-ORDINATORS

To promote an awareness of WICEN within their area amongst amateur radio operators and counter disaster agencies.

To organise, if warranted, a local emergency network to meet any requirements of an area. To organise regular practice exercises using correct WICEN procedures as laid down. To supervise the running of any such network.

To act as liaison officer with the State Emergency Service in an area, and/or any other authorities as necessary.

To maintain a close liaison with the WICEN Regional Co-ordinator and to act on such policies or suggestions issued periodically.

To maintain a list of WICEN operators in an area together with all relevant details. Such information is to be lodged with the Regional Co-ordinator together with a plan for the local network and frequencies used locally.

To be conversant with regulations relating to emergency communications as per the DOC handbook.

ORGANISING A CALLOUT LIST

There are four levels of activity for amateurs:

Member of WICEN
Member of SES
Member of Third Party Traffic Net
Operator

It is important when compiling a list of those anticipating activity in WICEN to bear in mind that many WICEN operators, particularly in small communities, may belong to multiple organisations. This is a good thing provided there is not a conflict of interest.

It may be pointed out that if on a WICEN callout things are going slowly, members should not change allegiance midstream. This only makes it difficult for all.

KEEPING RECORDS — Suggested approach

Each WICEN Co-ordinator should endeavour to maintain an up-to-date list of all volunteers available for callouts or exercises.

The following information may be useful:

IDENTIFICATION — Name, address and call sign
CONTACT DETAILS — Home and work phone numbers
AVAILABILITY — How long can the member afford to be on duty
RESPONSE TIME How much time does the member need to respond to a callout
VEHICLE — Type — is it able to go cross country
EQUIPMENT — Transceivers, bands, modes
POWER SUPPLIES — Generators, mains supplies, batteries

ACCEPTABILITY OF WICEN — PUBLIC RELATIONS

Liaison must be made with the public, and relevant counter disaster agencies, capabilities established and mutual trust and respect achieved ***before*** *embarking on practice or operational exercises.*

WICEN has suffered in the past with an identity problem in achieving acceptability by counter disaster agencies. Rather than tell authorities what we can do and leave them to fit us into their plan, perhaps we can be progressive and see if we can solve their communication problems. If a disaster plan for the region exists, analyse it. If one does not, carry out a threat analysis (See Appendix One).

Public relations and liaison with all other services is of primary importance and aids your ability to:

Plan your own exercises
Plan co-operative exercises
Be able to be recognised as a viable service when giving or requesting assistance.

Having ascertained the likelihood of any particular disaster in your area, make certain you know and are known by your local co-ordinators. This may include CFA Local Captains and Regional Officers, SES Local and Regional Officers, Telecom Australia District Co-ordinators, and Disaster Welfare Plan Regional Co-ordinators.

When dealing with personnel of other services and/or the public, be extremely conscious of the image you are projecting as an individual, and as a representative of WICEN. Of particular importance is your appearance when meeting people. Poor appearance in the form of untidiness or carelessness, arising from perhaps well meant informality, fails to impress. Adopt an attitude which will reflect the professionalism of the organisation you represent and act accordingly in your manner and dress.

GUIDELINES FOR EXERCISES

INTRODUCTION WICEN exercises should be conducted regularly to train people in message handling, and to test field equipment. One of WICEN's and amateurs strengths is flexibility in the type of equipment we use and the range of frequencies available to us.

In conducting exercises objectives must include matching current communications capabilities moulded around disaster plan needs, and testing/proving new communication techniques such as RTTY, portable repeaters etc. Training in the past has been dominated by practice in voice procedure and message handling. Organisers of exercises must also incorporate testing of frequency and equipment flexibility in their planning.

POINTS TO CONSIDER

Simulated disaster exercises are of limited value unless organised in conjunction with other counter disaster agencies and on a large scale.

For general purpose training and testing, community support exercises are useful. These provide assistance to the community and "real" traffic is passed.

WHO DO WE SELECT TO SUPPORT IN THE COMMUNITY??

(a) *The Community aid exercise should have training value for WICEN operators and involve personnel in tasks similar to emergency situations:*

(b) *It must be within the local groups capabilities and should demonstrate WICEN to local authorities.*

DO WE REPEAT COMMUNITY AID EXERCISES YEAR AFTER YEAR??

All exercises should be debriefed thoroughly to

guage their worth. WICEN may be hooked into a support situation each year and drift away from the general training and exercise aims. Where little exercise traffic is passed and the community event is adequately covered by other services, WICEN should not consider participating. Bear in mind that some exercises may be useful to both parties by strengthening ties and create support for our role.

Larger exercises, including all night and extended period of operation are also good training and may include car rallies, canoe marathons, etc.

EXERCISES AND THE DEPARTMENT OF COMMUNICATIONS

The Department of Communications is the regulatory authority governing amateur radio in Australia, and as such concerns itself with all aspects of the Amateur Radio Service. With regard to WICEN and exercises:

DOC must be convinced that personal safety would be at risk without WICEN involvement, and that WICEN receives valuable exposure.

Permission for exercises must be obtained from DOC. Details of proposed exercises are to be conveyed to the WICEN State Co-ordinator as he is generally in close liaison with officers of the Department.

Regulations regarding exercises are listed in the Handbook for Operators of Amateur Stations. A request in writing must be received at least ten working days before the proposed exercise. The request should contain the following information

- *frequencies to be used*
- *area of operation*
- *organisations operating during exercise*
- *declaration that amateurs receive no gain*
- *details of proposed types of messages (personal safety, accident reports etc)*

All logs must be kept for 12 months.

SUMMARY

Remember the word "PLEDGE" as it will remind you of those points to remember when organising field exercises.

Plan — your involvement and identify what communications you will be expecting or expected to supply

Liaison — good early liaison with those groups you will be working with is a must

Effort — put considerable effort into planning your exercises

Determine — your groups capabilities, strengths and weaknesses

Guide — members participating in exercises or as a support group should be treated no worse than the organisations helpers. This could include free entrance tickets, lunch facilities, car parking, use of clubrooms etc. You are providing a free service which would be quite costly if hired commercially.

Ensure — all WICEN members know their duties and limits of responsibility.

CONDUCTION OF THE EXERCISE

Some tips on Communications

* BE CLEAR	always use words and language the other person will understand
* BE CONCISE	too many words confuse people
* BE COMPREHENSIVE	cover all major and important points
* BE POSITIVE	positivity helps to give confidence and helps to get the message across
* BE COURTEOUS	courtesy is not a sign of weakness but gives the other person the right to be considered as a human being
* REQUEST, DON'T ORDER	where possible use the "we" approach
* BE PATIENT	as this will help those lacking confidence or who may be shy
* LISTEN	thoughtfully to each question giving it careful consideration
* DO NOT	take an aggressive question personally — treat it as evidence of concern and answer it fairly and calmly.

Frequencies

There are no dedicated WICEN frequencies, only band plans. The authorised emergency network operations are accorded a clear frequency by regulation (See Handbook section 6.32). However recommended frequencies for operational use are the following:

HF *— 3.600 7.050 14.100 21.190 28.450 MHz*

Secondary frequencies are +25kHz for SSB and −25kHz for CW

VHF *— Simplex Channel 6500 146.500*

Band sharing

The key to good operating is courtesy, tolerance and consideration on both sides. A short identified request along the lines of:

"..... Victorian WICEN is conducting a WICEN exercise in support of the local SES. A clear frequency would be appreciated. This is VK...."

Public relations

Frequently members of the public ask questions which appear on the surface to be shallow or stupid. Try not to assume this as questions may be asked out of ignorance or stoked by a situation or personal anxiety. They may be conversation openers with the real question to follow. Where the person appears under stress, the question in reality may be a form of seeking reassurance as well as guidance. A brusque or contemptuous reaction to the initial question gives no feeling of support or reassurance to comfort the questionner.

Administrative procedures

In the past there has been a fallacy that the most important job one can do during an exercise is operate communications gear. True, it is an important job but one which ranks equal to that of administering an operation. The astute organiser knows that the running of an exercise requires operators, logkeepers, rostering staff etc. Guidelines for procedures and duties to be performed in an exercise are adequately covered in the publication "WICEN OPERATING PROCEDURES LEVEL 1".

Reference should also be made regarding the establishment of a communications network in an operation. Varying factors will determine the size and requirements of a network, perhaps the most important being the area of operation and availability of members with suitable gear.

CONCLUSION

The preceding notes are by no means exhaustive and have been compiled in the hope that they form the basic building blocks for WICEN members to plan and co-ordinate their own exercises.

When planning exercises remember we are all communications orientated, and as such their will be no excuses for not communicating with those directly involved in an exercise, the public, WICEN members, or members of other authorities.

COMMUNICATION means CO-OPERATION, and CO-OPERATION means CONSOLIDATION.

APPENDIX ONE

THREAT ANALYSIS — SUGGESTED GUIDELINES

This involves grouping threats in your local area into probabilities of occurrences and seriousness of disaster. You should aim to satisfy the most likely occurrence in your area.

When planning involvement in countering disasters, and the training leading up to it, you should examine the relevance of the table entries to your local area.

CONSIDER: What are the most likely threats?

What can WICEN do to counter them at various levels of severity?

How does this influence training?

SCALE OF DISASTER

RISK	MAJOR	MODERATE	MINOR
High	Erosion Flood Drought Cyclone Wildfire Storms	Flood (Flash)	
Med.		Plagues	Landslide Temperature extremes
Low	Epidemic .	Tornado Salinisation Tsunami Earthquake	Frost

APPENDIX TWO

HOW DO YOU RATE AS A WICEN OFFICER?

Do most of the local amateurs know you as a WICEN officer?

Have you given a talk at your local radio club on WICEN?

Have you organised a local WICEN net in your area?

Do you know the name of your local SES Group leader?

Do you know the name of the SES Area Controller?

Can you recite the phonetic alphabet?

Are you familiar with WICEN prowords?

Do you know how to give and take a map reference?

Have you emergency power and can get on the air without mains?

Have you a telephone?

Are you emergency minded and a survivalist?

Could you erect an emergency antenna within half an hour?

Have you a fully stocked first aid kit?

Have you a survival kit or emergency rations?

Have you a fire extinguisher in the house or car?

ACKNOWLEDGEMENTS

The following references have been useful in compiling this paper:—

1. WICEN News series of articles 1979-1983 — Ron Henderson VK1RH.
2. Portable Station Instructions — Colin Pomroy VK3BLE
3. Introduction to Police Administration, Communications and Communicating — Mr V M Barlow QPM, AFAIF and Mr C Proctor, BA (Hons Psych) MA PsS, MACE, FAIM.
4. Victoria Police Manual and Standing Orders
5. WICEN Notes — Peter Mitchell VK3ANX.

AR

MAN IN MOTION

The British Columbia PEP Amateur Radio Service is seeking support and amateur radio communication help for Rick Hansen — wheelchair marathoner, who will wheel 25,000 miles around the world. Rick will be in Australia during December 1985 and January 1986 and will wheel between Sydney and Townsville.

Are any members prepared to help by providing communications during the trip? If so, please contact the VK2 and VK4 Divisions, who will have more details.

AR

CLUB CORNER

SEQTG & SEQATVG — A WORLD FIRST?

The South East Queensland Teletype Group and the South East Queensland ATV Group are co-operating to transmit the RTTY news from VK4TTY live on the ATV repeater on UHF channel 34.

It is now possible to watch the RTTY broadcast on UHF TV similar to a 'glass' RTTY terminal on the Mt Cotton repeater, 3.630 MHz and UHF TV ch 34 every Monday evening at 1000 UTC.

from QTC June 1985 **AR**

DEVIL NEWS FROM THE NW BRANCH

There was a good gathering at the last Branch Meeting when one considered the poor, wintery weather.

The lease for the ATV repeater site has been renewed so it looks like the repeater will be on top of the mountain for a few more years.

A new antenna has been purchased by the Branch. This will save the beam being pulled down and moved for use at outside broadcasts, such as JOTA. The new antenna is a five band, trapped vertical.

The Branch also hopes to become the proud owners of a new HF set in the near future. Donations have been forthcoming from many members of the Branch, many thanks to them. The Branch has many good hearted people and it is a great feeling to be part of the people who give so much in so many ways.

RTTY is not yet operational as there is still much work to be done on the terminal, however Jack VK7WJ has much of the work in hand, so hopefully it should not be too long before something is happening.

Two metre repeaters 2, 3 and 8 will be set for remote linking by the end of the year.

Florian Biner, the activities officer, has many projects planned for the future including the conversion of the Siemans printer to 45 Baud.

About 250 QSL cards were despatched but not many incoming ones, due to the condition of the bands.

The Clanger Award was received by Tony VK7AX for purchasing raffle ticket books and not taking them to the meeting.

The meeting concluded with an interesting talk on SSTV by Tony VK7AX, which was enjoyed by all in attendance.

Thanks to Greg VK7ZBT for his assistance with these notes.

Contributed by Max Hardstaff VK7KY. **AR**

MOOMBA RADIO CLUB

The Moomba RC have an award called the "Minnet (The Mining Net) Award".

For further information about this award contact the club call sign VK5GAS or write to the Secretary, PJ Blades VK5APB, Moomba RC, Moomba Camp, FC47, GPO Box 563, Adelaide, SA, 5001.

AR

WESTERN SUBURBS RADIO CLUB HONOURS MEMBERS

Recently the Western Suburbs Radio Club Committee and members paid tribute to five of their esteemed colleagues, whose efforts in supporting the Club since its inception have been extraordinary.

Preliminary discussions on forming a club were held on the old 2 metre Channel "A" on 19 September 1969. This on-air discussion was convened to determine the possibility of forming a radio club to serve the north and west of Melbourne. Those present in the net included Ian VK3ANZ, Ian VK3ZFH, Ted VK3ZZO, Ted VK3ZKP, John VK3ZWL and Les VK3ZPB.

A meeting was then arranged in the You Yangs on Sunday 21st September 1969. The meeting was arranged to discuss the formation of the club. As a result of discussions, and combined with the comments and thoughts of many XYLs attending, a formation committee meeting was planned. Three meetings took place on 21-11-69, 18-12-69 and 30-1-70.

The inaugural meeting of the club took place on the 20th February 1970, and for many years the Club convened each month at the Melbourne Caravan Park in Elizabeth Street, Coburg. Since 1983 the Club have occupied the Ern Rose Memorial Pavilion, Edwardes Lake, Reservoir, where the recent presentations took place.

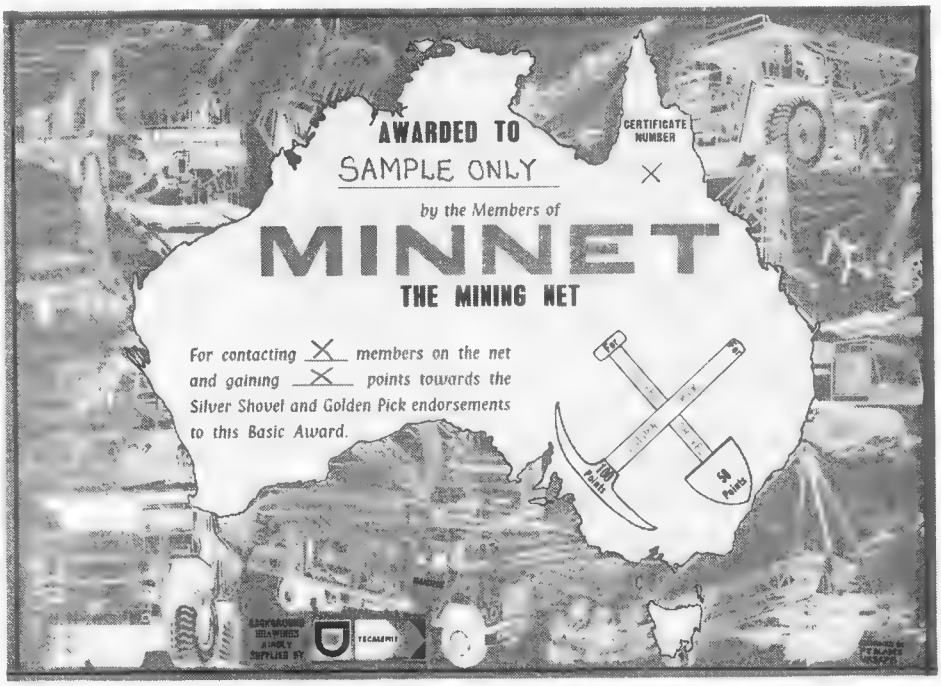
Muriel May received a Service Certificate for her excellent efforts in performing duties as Secretary of the Club during 1982 and 1983. Muriel is the XYL of Neil VK3KNM, himself a hard worker for the Club. Muriel is the first ever recipient of a Service Certificate, and deservedly so.

Les Johnson VK3ZPB, the oldest founding member of the Club, was presented with a Life Membership Certificate. Les was the first Secretary of the Club in 1970, and performed this task also in 1971, 1972, 1973 and 1974. Les was Member of the Year in 1975, and magazine Editor for several years.

Ted Howell VK3ZKP was presented with a Life Membership Certificate for his untiring services to the Club. As a foundation member Ted has consistently contributed his services for the benefit of others, and continues to do so.

Below:
Les Johnson VK3ZPB, (left) oldest founding member of the Western Suburbs Radio Club receiving his Life Membership Certificate from Club President, Mark Stephenson VK3PI.

Photograph by Luigi Diamante VK3ZLD



Photograph by Luigi Diamante VK3ZLD

Proud recipients of awards, from left Tom Page VK3AGH, Les Johnson VK3ZPB, Muriel May, David Hunt VK3DMH and Ted Howell VK3ZKP.

Tom Page VK3AGH was presented with a Life Membership Certificate for his unselfish contribution. Tom has held the position of President (1978, 1979, 1980, 1981 and 1982), Vice President (1973, 1976, 1977, 1983), and Secretary (1984) and again this year Tom was Member of the Year in 1980, and remains as one of the more dedicated of our members.

David Hunt VK3DMH is known by many amateurs, and was presented with a Life Membership Certificate prior to his departure to reside in Canberra. David held the position of President in 1973, 1974 and 1975, Vice President in 1979 and 1980, and was Member of the Year in 1972. David used his extensive experience to run radio theory classes for aspiring radio amateurs over many years. David's efforts have been successful in assisting many members of the Club to gain their Certificates of Proficiency. His QSY to VK1 is our loss, their gain.

The Western Suburbs Radio Club continues to grow. Providing the Club attracts people of the calibre of those in the past, the Clubs attractiveness in providing companionship in an intimate small club atmosphere is assured.

Some readers may be interested to know of the whereabouts of the foundation members of the Club? Les VK3ZPB and Ted VK3ZKP are still staunch supporters of the Club. Ted VK3ZZO is also active, although he has had to restrict his club activities due to other commitments. Ian VK3ANZ now resides in VK2, and John VK3ZWL resides in VK4.

Contributed by Mark Stephenson VK3PI

AR

STOLEN EQUIPMENT REGISTER

In accordance with the 1984 convention motion 84:17:01 the Federal Office has established a stolen equipment register. Members wishing to take advantage of this register, either to publicise their loss or to check equipment offered to them may write or telephone to the Federal Office their enquiries.

To update the list published in the last issue:

MODEL	SERIAL NUMBER	STOLEN FROM
Icom IC25A	*03831*	*VK2DPM*
Icom IC45A	*01876*	*VK2DPM*
Icom IC211	*6804309*	*VK3BRV*
Kyouto FM144/10	*5027*	*VK2KUR*
DS Explorer 70cm Transceiver (has extensive internal mods)		
Icom IC215	*05156*	*VK2AMX*
Yaesu FT209RH	*4K050838*	*VK3CE*
	(BLUE VINYL CASE)	
Icom IC-2A	*04484*	*VK1MX*
Yaesu FT207R	*10132725*	*VK2EMC*
Kenwood TS120V	*0081224600*	*VK2VWN*
Icom IC22	*12266*	*VK3BLC*
Kenwood TR2400	*0061926*	*VK2PJ*
	(Call sign engraved on case)	
Yaesu FT708R	*1H01948*	*VK2PJ*
	(Call sign engraved on case)	
Yaesu FT203	*4H081794*	*Dick Smith Electronics (Box Hill, Vic)*
Yaesu FT209R	*4L06245*	*Dick Smith Electronics (Box Hill, Vic)*
HX 2000 Regency hand-held Dick Smith Electronics (Box Hill, Vic)		
Yaesu Y-901-P	*9-L-030072*	*VK1ZVR*
	(with all extra modules & cables).	
Thorn B&W TV	*107512*	*VK2XJC*
	*Modified for computer use **	
Yaesu FT780R	*3F07521*	*VK2XJC **
Yaesu FT680R	*3H080202*	*VK2XJC **
Tokyo HL90U	*8304246*	*VK2XJC*
	*70cm Hi Power Amp **	
Tokyo HL160V	*829331*	*VK2XJC*
	*2m Hi Power Amp **	
Tokyo HL86V	*819595*	*VK2XJC*
	*6m Hi Power Amp **	
Kenwood TS430S	*4010322*	*VK2XJC*
*includes, FM board, AM, CW, SSB filters. * (has clip soldered to finals cage.)*		
Dick Smith Audio Generator		*VK2XJC*
Dressler EVV2000	*1027*	*VK2XJC*
	*2m pre-amp **	
Welz SP200	*600384*	*VK2XJC*
	*SWR/PWR meter **	
Saiko SC7000	*Scanner*	*VK2XJC*
*has BNC connector for antenna socket **		
Sharp VCR	*922270*	*VK2XJC*
Rank Arena CTV	*2017322*	*VK2XJC*
National Panasonic	*Tape Recorder*	*VK2XJC*
** indicates complete with manuals.*		
Kenwood TR2500	*3040009*	*VK2ZQC*
Yaesu FT290R	*4E360554*	*VK3KGH*

If you are offered second-hand equipment, please check with the stolen equipment register before purchase.

AR

HISTORY ON HOBART'S AIRWAVES

The Tasmanian Hamfest, held on 8th and 9th June was a great success. During the weekend a historic re-enactment of the first ship-to-shore wireless signals in Tasmania in 1901, took place.

The Hamfest was a dual celebration, the 60th Anniversary of the incorporation of the Tasmanian Division of the WIA and the 75th Anniversary of the Institute.

The 1901 experiments were conducted by 'Pop' Medhurst, situated at the Blinking Billy Lighthouse to a British warship, the HMS St George, a naval escort vessel. These experiments took place only four years after Marconi made similar experiments in Wales, in 1897.

For the re-enactment, special permission had to be received from DOC to use a WWI spark transmitter. A message was transmitted from the same lighthouse to a vessel, the Marie Francis, then back to a receiver at the Hamfest. It was then transmitted to Cardiff in Wales. DOC's Senior Radio Inspector, Dave VK7MR, was the operator of the spark transmitter.

Contributed by Jim Davis VK7OW.

AR

THE STATELY MORSE OLD TIMERS

(Apologies to Noel Coward.)

Here you see the pick of us,
You may be heartily sick of us,
Still with sense we're all imbued . . .
Although we sometimes keep aloof at amateur conventions
Our good intentions
Musn't be misconstrued . . .
The stately Morse Old Timers how stolidly we stand,
To prove the nineteen twenties have still the upper hand.
Though Grandfather used a microphone.
And Uncle Tom sent a sideband tone.
We are trying to live it down — we don't mention them,
We're making up for their fall
By using no speech at all.
The copper in our spark coil is getting rather green,
We bought it at disposals in nineteen seventeen.
But if circumstances force us to —
And sometimes we fear they might —
We'll move on to Ancient Modulation.

Roy Hartkopf, VK3AOH.

FORWARD BIAS

VK1 DIVISION

Ken Ray
PO Box 710, Woden, ACT 2606

MEETINGS

The VK1 Division's general meeting for this month is on Monday 26th August in the studio room, Griffin Centre, Civic. Doors open around 7.45 p.m., with the QSL Bureau and Bookstall available before and after the meeting. This months' topic is Test Equipment and its uses. Visitors and non-members are most welcome, so come along and meet old friends, or make new ones.

RD CONTEST

While on the subject of diary reminders, don't forget the Rememberance Day contest on the weekend of the 17th and 18th of this month. Let's all try to return the trophy to its rightful place (in VK1 of course). If all VK1s who enter the contest submit their logs, we should have a good chance. By the way, you can hand in your completed log sheets at the August meeting, to save postage. The important thing is, though, to enjoy yourself and have a good time.

UHF BEACONS

Two UHF beacons have been constructed by Dick VK1ZAH, and at the time of writing, were under test at a location on the south side of Canberra. No technical details are available yet, but the frequencies are:

70cm 432.410 MHz
23cm 1295.410 MHz (I think)

A final location has not yet been determined, as there is insufficient room at the Mt Majura site for any more equipment. More details on these when they come to hand.

JOTA

Don't forget that the 19th to 20th of October is JOTA weekend. If you can help, contact Alan VK1KAL. JOTA is an excellent opportunity to show to others the fascinating hobby of amateur radio, so if you can spare some time, let Alan know when you will be available.

If you are not able to help operate one of the VK1 JOTA stations, you may be on the receiving end of a QSO with a Scout or Guide group. If so, have patience, and encourage the young operators. Remember back to you first on — air QSO — they may be as nervous and as "mic shy" as you were — your understanding and encouragement will make it an enjoyable experience for them. **AR**

VK2 MINI BULLETIN

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
PO Box 1066, Parramatta, NSW 2150

WILL THE RD TROPHY REMAIN IN VK2?

This is an important month for the amateurs in VK2. Last year for the first time since the year the event was introduced (1948), that the amateurs in VK2 were the winners. We won it last in the first year. It has been too long between visits and would be nice if it remained here for a while. For it to do so however requires the annual contest, which is occurring this month — see rules in the Contest section in July AR.

The Remembrance Day Contest — long billed as the frienly contest — is worked on a ratio multiplier of the number of logs received against the number of licences issued in the State. For a State to do well requires first the operation by as many stations as possible and second the return of the logs. *Will you set aside some time during the RD weekend to enter the 'Friendly Contest'?*

WICEN.

WICEN exercises being held during the remainder of this year include — Sun City to Surf 4th August. Car rally at Batemans Bay 21/22 September, contact Peter VK2PJ for details. Outward Bound Hawkesbury Canoe Classic 26/27 October, contact Tim VK2ZTM. Schofields Air Display 9/10 November, contact Syd VK2AHF. WICEN members should advise early which events they are in a position to assist with and any other amateurs may also register their interest. In many cases your assistance would be welcome which would enable you to take part in the training the event provides and obtain an understanding the role that WICEN operation provides.

RECENT HAPPENINGS

While reports are still coming in from the groups who took part in the 'Envelope' release on 22nd May, it appears to have been a most successful day and in some cases a week. Many groups in the country centres were able to have a poster and static display for the whole week.

The Oxley Region conducted a most successful field day over the June holiday weekend at Port Macquarie. Part of the prize presentation included handing over the trophy to Peter Alexander VK2PA, who was the winner of the 75th Anniversary CW Contest held on the 11th March.

A reminder that the South West Zone Convention will be hosted by the Wagga ARC at Wagga over the weekend 26/27 October.

The next Conference of Clubs will be held Sunday 3rd November at Teralba and hosted by Westlakes ARC. Agenda items should be considered now and should reach the Divisional Office by 10th September.

LECTURE BY KARL MEINZER DJ4ZC.

During Karl's visit to Australia it was Sydney's turn to hear his lecture on OSCAR 10 at the VK2 Division Parramatta Headquarters on Wednesday 29th May. Over 80 people attended. Karl's talk in Adelaide on the previous Monday was video taped and a copy is available for borrowing from the VK2 office. One sour note to the evening was that some cars were broken into and equipment stolen from them.

REPEATERS ETC.

A meeting was held in Newcastle on 15th June to discuss a variety of repeater matters. The Central Coast ARC are carrying out site tests west of Newcastle for a wide coverage 2 metre system. They are developing a 23 cm beacon. The Newcastle ATV and UHF group have submitted an application for an ATV repeater. They have also lodged a request to establish a 6 metre repeater. Packet Radio was discussed and it is expected that a repeating system will be developed for the region. Westlakes repeater VK2RTZ 7100 has been overhauled and relocated to a good site in the region of the TV services for Newcastle. The meeting then discussed the proposals from both Westlakes and Hunter-branch for RTTY repeaters. It was decided to accept both proposals. The system proposed by the Hunter-branch Radio Group would be a dual RTTY/Voice system with coverage towards the north and along the Hunter Valley. The proposal from Westlakes would be a RTTY only one from a site towards the south of Newcastle providing coverage over Lake Macquarie and the Central Coast.

There has been a lot of interest recently in new systems for VK2. A report on these proposals will be given next month.

Next month — the start of Spring - will feature another VK2 Division Special within the pages of AR.

A reminder that the Divisional office is open Monday to Friday 11 am to 2 pm., and on Wednesday nights 7 to 9 pm. Phone 02 689 2417 during these times. At other times the 'message only' answering machine will advise you of the office hours.

The office has a full range of the 75th clothing, together with the range of publications from various amateur radio publication sources. **AR**

QSP

SIGHTLESS AMATEUR ON PACKET RADIO

25 April 1985 marked an important event for the Rochester packet radio fraternity. 1985 has seen rapid growth of packet in the Rochester area, but the highlight has to be the appearance on packet of Walter Keleher KA2ASL. What's so unusual? Walt is blind.

Operating on voice or CW without sight presents some challenge, but think about operating on packet radio without your sight. Sending is not a big problem, since Walt can touch type, but receiving is another story. Walt has an Apple IIe computer, an Echo voice synthesiser and a specially developed terminal programme. This terminal programme unites the computer/terminal and the text-to-speech functions of the synthesiser or "talker". Whatever appears on the screen of the computer is "read" by the talker, in nearly perfect speech. If pronunciation errors are made, Walt can back up to get a repeat or to have the unit spell out the unknown word or phrase.

On the evening of 25 April, Dave Denz N2DWL, and Mark Winrock both members of the Rochester Packet Group, went to Walt's home and set up his TNC and radio. After a short period of instruction and coaching the big moment arrived. The equipment worked perfectly. Walt worked WB2NBU, K2YNW and W2DUC in rapid succession. While Walt was taking his time learning about packet operation, the rest of the gang was taking turns sending to him. Walt reports that they are perfect copy, but all seem to have a Swedish accent (a common trait of text-to-voice processors).

It was an exciting evening, introducing Walt to packet radio and helping willpower overcome a great barrier.

From W2DUC

From the ARRL Packet Radio Newletter "Gateway" May 21, 1985.

Contributed by David Pilley VK2AYD. **AR**

HF PACKET RADIO

David VK2AYD is interested in conducting HF tests using 1200BPS with other amateurs interested in Packet Radio. As a tentative start he will be on 14.103 MHz (circa QRM) every Sunday at 0100 UTC. David is also prepared to try any other amateur band at any time outside of working hours. Interested amateurs may contact David on (02) 452 5441.

AR

VK3 WIA NOTES

VICTORIA 150

THE 1985/86 COUNCIL FIRST MEETING

Election of officebearers has resulted in no change to the major positions.

Re-elected were Jim Linton VK3PC President, Des Clarke VK3DES Secretary, Bill Wilson VK3DXE Vice President and Council Chairman — with Lindsay Rohrlach VK3KAF, the Treasurer, an office filled at the end of each divisional financial year on 31 December.

The President is now in his third term, and the Secretary has held that office for most of the past five years.

Other councillors were John Adcock VK3ACA, Andy Chan VK3DPJ, Alan Heath VK3KZ, and Barry Wilton VK3XV.

Among the first business of the new Council was a review of Vic Div General Meetings. It was resolved to accept the invitation of member clubs to use their venues.

Quarterly meetings were to be arranged at club venues with meetings on other months to become natter nights at the Wireless Institute Centre.

Full details of the new arrangements, including publicity about the location of quarterly meetings and guest speakers, will be published most likely as an insert in AR, and on the Sunday Broadcast.

CLASSES AND REVISION WEEKENDS

The next theory and Morse classes run by the Vic Div begin soon and prior enrolment is advisable.

Novice theory and Morse classes begin Tuesday, 27 August, AOCP theory starts Monday 26 August, with AOCP Morse on Tuesday 27 August.

Anyone can also take the theory and Morse classes separately.

Theory revision weekends will be held very soon for those intending to sit the next DOC exams.

The Novice weekend is on 3/4 August and AOCP theory being covered on 10/11 August — book yourself in now to avoid disappointment.

To secure a place in either the regular theory and Morse classes, or the special theory revision weekends, write to the Education Officer, Wireless Institute, 412 Bruswick Street, Fitzroy Vic. 3065, or telephone (03) 417 3535.

Two members proudly show their LETTER OF APPRECIATION issued by the President for service to the division.

This new form of recognition was launched at the 1985 AGM.

The first ever "LETTER" went to Norm Dench VK3DNE in appreciation of the role he played in ensuring WICEN and our hobby were prominent at the Melbourne Airport open weekend last February.

WICEN provided ground communications and a comprehensive display station situated in a hangar was provided by members of the Western Suburbs Radio Club.

Retiring Disposals Officer, Fred McConnell VK3BOU (pictured right) has made a truly commendable contribution to Vic Div in the past two years.

Hard dedicated work by Fred resulted in $8,000 income from the sale of disposals equipment.

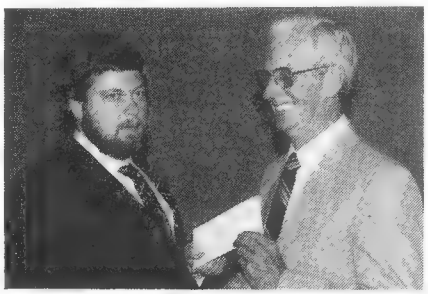
Not only did the division benefit from the income, but members (including some in other divisions) had access to cheap equipment.

A third "LETTER" was presented to the RTTY Fixers Group which turned incomplete and damaged Siemens teleprinters into clean, working and reliable machines.

The group even provides a back-up self-help service for anyone who strikes a difficulty with their teleprinters.

The many manhours volunteered by group members greatly contributed to the disposals service and the RTTY scene generally in Victoria.

Arthur Fraser VK3BII accepted the "LETTER" on behalf of his fellow RTTY fixers.



First prize winner in the annual Kinnear Trophy for contributions by Vic Div members to AR magazine, was Ken McLachlan VK3AH. The President caught him by surprise when he announced the prizes at the 1985 Annual General Meeting. Ken was chosen first by the judges for his sustained effort as DX notes editor and photographic contributions. Second prize went to Lindsay Lawless VK3ANJ and third placegetter was Des Grenham VK3CO — both had a series of articles published during 1984.

REMEMBRANCE DAY CONTEST — 17 & 18 AUGUST 1985

Victoria has won this, the major WIA contest, only once, and that was many years ago.

Last year it was encouraging to have an increased number of VK3s submit logs.

This year, with just a little more effort, the RD Trophy will be Victoria's.

It would be appreciated if all WIA zones and member clubs help encourage participation by their respective members.

The message is simple:—

* *Maximum participation is needed — a minimum valid log needs* **25** *contacts.*
* *As many Victorian call signs as possible should be put on air — dual call sign holders and zone/club call signs included.*
* *A free RD Contest Kit is available. Send a self-addressed A4 size envelope, plus 3 x 33 cent stamps to:- RD Contest Kit, PO Box 270, Greensborough, Vic. 3088.*

As further encouragement, each Victorian radio amateur, zone or club submitting a log with more than 100 contracts will get an RD contest participation certificate.

There will be endorsement for each hundred, from 200 upwards.

A zone and club competition will be held again this year based on maximum percentage participation. For registration in this competition, a list of zone/club members must be with the VK3 RD Contest Co-ordinator before 17th August.

NEW MEMBERS

A warm welcome is extended to the following:

Mark Anderson, John Antonello VK3ZAF, Reg Bagwell VK3VRB, William Bibby VK3KWB, Michael Boord, Sergio Bughi VK3XAR, Allan Clark VK3CAC, Kazimierz Gretschel VK3CKG, Evan Matthews, Ronald Raworth VK3CRR, Ian Rochester VK3VIR.

Leon Reichelt VK3NLR, T R Smith VK3NTS, J H Struckeh VK3PSJ and John Svendsen VK3NJS.

Judith Atkins VK3NYL, Ronald Atkins VK3NYM, A Baker VK3YWR, R Berger, Ashley Bolton VK3NAB, Paul Casbolt VK3ZAD, Peter Crawford, Frederick Dierck VK3KTC, Mark Fairbairn VK3XVC, Ian Fitzpatrick VK3BV, Robert Habel VK3KCH, Christopher Kayler-Thomson VK3CKT.

William Land, Robertson Milne VK3KEL, Peter Wajngarten VK3NAD, Russell Walker VK6CV and I Westerland.

FIVE-EIGHTH WAVE

Jennifer Warrington, VK5ANW
59 Albert Street, Clarence Gardens, SA 5039

Which VK5 old-Timer holds the record for having held a licence the longest? — and is he still on air? (I say he because I know that there are no ladies eligible!) I don't know the answer to these questions, but perhaps YOU do, if so I should be very interested to hear from you. I do know of a couple who must be near the top of the list. I heard this week that John Bulling VK5KX "chalks up" 50 years in August, so congratulations John; but one better than that is Keith Ring VK5KH who notched-up his 50 more than 2 years ago, a great achievement indeed.

There must be many things about those early days which would make very interesting reading or listening. The only trouble is, how to get it. One suggestion being "tossed around" at present is that we could get some of the old timers to put their early recollections and anecdotes about amateur radio on to audio tapes. These could possibly be used as a regular Historical Segment for the Sunday Morning Broadcast. Peter Barlow VK5NPC, our distinguished Broadcast Producer, is quite enthusiastic about the idea, so if you would like to be involved, please contact Peter direct. We would also like to hear from anyone who made copies of the Historical Segments that Les Diener VK5NJ made several years ago. Unfortunately, the originals were not kept, so we should be delighted to hear of any copies. Needless to say, we shall try to ensure that the same fate does not befall anything which is taped in the future which might have some historical significance. It is good that our 75th Anniversary has made us aware of our early beginnings — but let us make sure that nothing which we have now, be it a person's memories, a tape, photographs, or anything else, gets lost. Think how much more important it will have become by our 100th Anniversary!

At the first Federal Convention that I attended I was told that if I didn't bring back the RD Trophy I wouldn't be allowed back into the State. So for four years (with your help!) I continued to bring back the trophy — and what happens — the first year that I'm not there to keep an eye on things they let the VK2s take it home! Joking aside, this is RD month once again, and as they say *"you have to be in it, to win it"* so come-on VK5 LET'S BRING THAT TROPHY BACK WHERE IT BELONGS!

Diary Dates

17 AUGUST — 18th Remembrance Day Contest.
27th AUGUST — General Meeting.

WA BULLETIN

Bruce Hedland-Thomas VK6OO
VK6 PRESIDENT
Box 10, West Perth, WA. 6005

COUNCIL REPORT FOR THE YEAR APRIL 1984 TO MARCH 1985

One of the few things not to suffer from inflation is these council reports. I have noticed that they have become steadily shorter since 1981 and I hope this year continues the trend.

MEMBERSHIP

We normally compare membership figures from one January to the next. We are not able to do this due to problems with the Federal Office computer, which have resulted in our not having received any EDP sheets since last November. However, on 17th November 1984 we had 744 members, exactly the same number as at the same time the previous year. This is the first year since the CB boom that we have not experienced a nett growth.

These are difficult times financially and when the figures come through with the unfinancials deleted, we expect to find we have lost a good many members. We lost 70 last year, we believe mainly attributable to subscription increases. For this reason, although the Federal portion of the subscription has had to be increased, we have held the divisional portion constant and even subsidised the Federal portion by 50c in the case of pensioners.

It is implicit in the two previous paragraphs that we must have elected 70 new members in the course of the year, some being new licencees and some previous members re-joining. We are glad to welcome them.

MEETINGS

We have enjoyed at least three excellent lecture/presentations at general meetings during the year. But these have all been arranged by one or other of the councillors, its having been impossible, either by threats or entreaty, to obtain a volunteer for Programmes Organiser.

Don Lorimer, assisted by Mark Bastin has continued to cater well for the needs of the 'inner man' (do we have to say 'inner person') at meetings.

The Christmas meeting was arguably the best of recent years and they have all been very good since we decided to move out of Science House on the third Tuesday of December. It was organised almost unaided by the redoubtable Bastin family — Cliff VK6LZ, Christine VK6ZLZ and Mark — at the Westrail Centre. The DOC manager remarked that it was the most enjoyable he had attended.

DEPARTMENT OF COMMUNICATIONS

We have continued to have excellent relations and receive cheerful co-operation from the Department.

WICEN

This group, which is still ably led by Don VK6DY and Syd Jenkins, will no doubt, report separately but they appear to have had a quieter year than usual. Perhaps a time for consolidation of their growth. It is a pity that their work and dedication is insufficiently recognised by the authorities. Council voted $400 to assist them with the construction of their own repeater.

SLOW MORSE

This most useful service has been maintained but with the minimum number of volunteer operators.

QSL BUREAU

From being in the red a couple of years ago, the bureau has traded itself back to a positive balance and still runs efficiently under the management of Jim VK6RU. It is interesting to note that the cost to users has been constant since September 1976 during which time postage must have increased by at least 50 percent.

BOOK SALES

In the book shop Christine VK6ZLZ has shown herself a worthy successor to Chris VK6DV with a few special touches of her own. Book sales are almost our only source of income outside subscriptions. At Radio Rally she sold $680 worth of books.

JOTA

This year JOTA was a mixture of inflation and deflation. There was an increase in the number of operators but fewer scouts and guides participated. As usual, the bands went dead but JOTA always has a special meaning, perhaps because it bridges the generation gap.

INTRUDER WATCH

Bruce VK6XZ is handsomely filling Dave VK6WT's shoes. There was an extra flurry of activity (and telexes) protesting about the use of amateur frequencies by contestants in the Hong Kong to Manila Yacht Race. We did not get much feed-back but no-one could have been in any doubt about our feelings. Subsequently, one of the offenders had his equipment confiscated when he put into a NW port.

NEWS BROADCAST

Under Douglas VK6ZMG, assisted by Alyn VK6ZGA, Chris VK6FC and Phil VK6AO, the broadcast is still very much our shop window to Australian amateurs, and a well dressed one too. We added an 80m evening relay to our list of times and frequencies.

A thoughtful and thought provoking submission on broadcast matters was received from the Southern Electronics Group, supported by other country clubs. We appreciate their interest and goodwill.

RADIO RALLY

This event was the highest of the year and even more successful than last year. Reading the description of the long established and respected Gosford Field Day in AR, Radio Rally seems to compare very favourably. If it could be said to suffer any faults, they would be due to too few people trying to do too much.

As a result of their dedication in masterminding and bringing the rally to fruition, Chris VK6AUX and his long-suffering XYL Robyn were made Co-Amateurs of the Year.

REMARKS

As we all know, committees do not design very good horses (the usual result being a camel) and councils do not write good reports. It therefore falls to the President to do the actual writing. Because of this I feel free to say that the councils members have been loyal, hardworking and shown quite exemplary co-operation and dedication. The division has been indeed fortunate to have such councillors.

There are undoubtedly other members who deserve to be singled out for thanks and I ask them not to feel slighted, but to give themselves the pat on the back they know they deserve.

If I had to sum up the year in a few words I would say it was very much "the mixture as before", but we still managed to go forward in some areas. The phenomenon which I feel is evident throughout this report is the marked reluctance of amateurs to offer themselves for the many jobs which need to be done if our hobby is to survive and prosper. When there is some special project, usually the bare minimum of people come forward at the last minute but it is

FINANCIAL REPORT OF THE WIA (WA DIVISION) 1984
BALANCE SHEET AS AT 31.12.84

1983		LIABILITIES		1984	
16,551-15		1 Accumulated Fund b/fwd.	20,152-08		
1,942-41		2 SURPLUS (Trading Account)	1,023 81		
1,658-52		3 Contingency Fund Interest	1,582-72		
NET WORTH –	20,152 08	4 ACCUMULATED FUND c/fwd			22,758-61
	662 37	5 Subscriptions in Advance		951-30	
1,069-00		6 WARC-99 Fund b/fwd	1,409-00		
340 00	1,409-00	plus this year	362-50	1,771-50	
	1,892-24	7 Sundry Creditors		364-22	
		8 Deceased Estate Suspence		2,969-00	6,056-02
	24,115-69				28,814-63

1983		ASSETS		1984	
		1 CASH			
		— Contingency Fund			
9,240-00		— TCU Cert. 10447	10,533-60		
1,293-60		— TCU Cert. 10983	1,474-70		
437-62		— TCU Cert. 11557 part	498-89		
576-55	11,547-77	— Accrued Interest	623-30	13,130 49	
		— Trading Account			
2,608-75		— R&I Cheque Account	5,548-23		
3,929-71		— R&I Golden Account	3,996-81		
137-23		— TCPBS	137-23		
2,562-38		— TCU Cert. 11557 part	2,921-11		
309-63		— Accrued Interest	717-55		
nil		— Bookshop Float	nil		
123-77	9,671-47	— Secretaries Float	nil	13,320 93	26,451-42
1,888-31		2 Trading Account Stock	1,295-02		
34 20	1,854-11	less Written Off	211-10	1,083-92	
		3 Equipment			
2,242-91		— Brought Forward	989-34		
596-60		— Purchases	44-00		
–1,498-37					
351 80	989-34	— less Depreciation	333 40	699-94	
	53-00	4 Sundry Debtors		579-35	2,363-21
	24,115-69				28,814-63

Signed C A Bastin VK6LZ Hon Treasurer
14.4.85

We certify that we have examined the books and vouchers of the WIA (WA Division) and have found them to be kept in a business like manner and to record the true financial position of the Division at the close of the period. We have received every assistance in the Auditing of the Accounts, and compliment Mr Bastin on the informative manner in which the Books have been kept and the final accounts presented.

Signed F E Taylor VK6JK *A H Van Den Avoort VK6HA*

Honorary Auditors 30th May 1985

impossible to get anyone to commit himself in advance to a pre-arranged task or roster. I can understand people having to drop their membership in times of financial stringency, but not people spending tens of hours per week operating and exercising the ever-increasing privileges which are gained for them by the dedicated few without being prepared to put anything back into the hobby which gives them so much pleasure and interest. We on the council don't want just an audience. We want co-workers. If many people were prepared to spend just one hour a month helping the Institute we could have an organisation which would be the envy of all others.

Think about it. Please!

AR

QSP

THREE MAJOR EXHIBITS DEBUT AT EXPO 86 CENTRE

2 May, 1985 was a crucial date for watchers of Vancouver's 1986 World Exposition. It marked the opening of the Expo Centre, a unique prelude to EXPO 86. For the first time in the history of World Expositions, the public will experience a major pavilion a year before the official launch of the main event.

Within the Expo Centre's 17 storey geodesic dome three major exhibits present the future. The most prominent exhibit is the 500 seat Omnimax Theatre with its 27 metre wide domed screen, a screen which surrounds its audience with images nine times larger than a conventional movie screen.

Called the world's most breathtaking medium, the Omnimax Theatre will feature the film **A Freedom to Move.** By turns philosophical, humorous, informative — and, above all, exciting — this movie puts the audience inside a speeding train, a hang glider and other fascinating means of travel.

Another exhibit inside the Expo Centre is the 323 seat Futures Theatre, where members of the audience have the final word on the future. Visitors are first introduced to a show of dazzling computer graphics and laser illusions dealing with topics ranging from extraterrestial intelligence to brain implants. Fifteen screens, a 16 millimetre projector and 12 speakers heighten the drama of the presentation.

The audience is then introduced to a series of future possibilities and asked to choose from these options. They vote through computer buttons set in the arm of each seat. The vote is then computed and the consequence of the majority vote is revealed through a second audio-visual show.

The third exhibit is **Design 2000,** an exhibition of future technology. On display will be high-tech holography and space gear, a strap-on jet plane and "alternative technology" creations such as human-powered aircraft and a three-wheeled cycle that will do more than 80 kph on the freeway.

Restaurants, shops and a gallery of windows with a stunning view of the city and the EXPO 86 site are also a part of the Expo Centre.

AR

WIA VIDEOTAPE PROGRAMME TITLE LISTING

See Note	TITLE (in chronological order within each subject grouping)	Lecturer	Prod.	Approx. Dur.	Col./ B&W	Year Prod.	Description and Other Information
	GENERAL PROMOTIONAL FILMS						
—	The Ham's Wide World		ARRL	30 mins	Colour	1969	Superceded by "The World of Amateur Radio"
—	This is Amateur Radio		ARRL	15 mins	Colour	1970	Pitched at teenagers
—	Moving Up to Amateur Radio		ARRL	15 mins	Colour	1975	Pitched at CBers
©	7J1RL DXpedition		JARL	60 mins	Colour	1976	General amateur radio interest, *Loan Only*
—	This Week has 7 Days looks into Amateur Radio		HSV7	25 mins	Colour	1978	Pitched at teens; includes some ARRL footage
—	Amateur Radio—The National Resource of Every Nation		VK5KG	6 mins	Colour	1979	Encapsulates AR; good for public exhibitions
—	The World of Amateur Radio		ARRL	30 mins	Colour	1982	Pitched at adult level
—	What to Expect when the RI Calls	Geoff Carter		34 mins	Colour	1984	General interest
	HISTORIC INTEREST						
©	Wireless Telegraphy—circa 1910		?	10 mins	B&W	1910	Archive material courtesy David Wardlaw, VK3ADW
—	Opening of Burley Griffen Bldg—SA HQ		VK5KG	50 mins	Colour	1977	Archive material
—	History of ATV in South Australia		VK5KG	30 mins	Colour	1980	Archive material, still building
—	ATV in Australia 1978—made for British ATV Club		VK5KG	30 mins	Colour	1978	Archive material
—	ATV in United Kingdom 1978—reply from BATC		G8CJS	30 mins	Colour	1978	Archive material
©	Heard Island Expeditions	ch	2,7,9,10	20 mins	Colour	1984	Archive material, *No Loan of Copy Available*
	ANTENNAS & PROPAGATION						
©	G6CJ's Aerial Circus	G6CJ	WIA	90 mins	B&W	1977	The Definitive Antenna Lecture, *Loan Only*
—	Wire Antennas	VK5RG	VK5KG	40 mins	B&W	1978	Antennas for HF and Antenna Tuners
—	Loaded Wire Antennas	VK5NN	VK5KG	50 mins	Colour	1980	Using Inductive and Capacity loaded Antennas
—	Getting Started in Understanding the Ionosphere	VK5NX	VK5ZBD	50 mins	Colour	1983	How the Ionosphere aids HF communication
	SPACE—GENERAL INTEREST						
—	Apollo 13 Disaster	VK5JM	VK5KG	90 mins	Colour	1980	Australian tracking procedure saved Apollo 13
—	SSTV Pictures from Space—Voyager		VK5KG	15 mins	Colour	1983	SSTV pix converted from Saturn fly-past
*	Amateur Radio's Newest Frontier		ARRL	24 mins	Colour	1983	Shows "Ham in Space"—Shuttle STS-9
—	Aussat—Australia's Domestic Comms. Satellite	VK5JM	VK5KG	?	Colour	1984	In Production
	AMATEUR SATELLITES						
—	Lecture—Tracking Oscar	VK5HI	VK5KG	40 mins	B&W	1978	Superceded (see below)
—	Getting Started in Amateur Satellites	VK5HI & VK5AGR	VK5KG	60 mins	Colour	1983	Superceded (see below)
—	An Introduction to Amateur Satellites (Pt 1)	VK5AGR	VK5KG	60 mins	Colour	1984	An overview of Amateur Satellite working
—	Micro-Computer Aids to Satellite Tracking (Pt 2)	VK5AGR	VK5KG	30 mins	Colour	1984	Programmes for tracking & decoding telemetry
—	Using Phase III Amateur Satellites	VK5HI	VK5KG	90 mins	Colour	1984	History, construction & use of high orbit sats.
	DATA TRANSMISSION						
—	Lecture—RTTY	VK5QX	VK5KG	40 mins	B&W	1978	Superceded (see below)
—	Getting Started in Amateur RTTY	VK5JM	VK5KG	85 mins	Colour	1983	RTTY using Teleprinters and Micro-Computers
—	Amateur Packet Radio	VK5AGR	VK5KG	60 mins	Colour	1984	Theory and Demonstration
	AMATEUR COMPUTERS						
—	Demo of VK5RTV's Micro-Computer Controller #1	VK5KG	VK5KG	10 mins	Colour	1979	First u-Computer controlled repeater in VK
—	Lecture—History of Micro-Processors	Rick Matthews	VK5KG	60 mins	Colour	1979	Now somewhat dated, but still sound
—	Understanding Micro-Processors	VK5PE	VK5KG	60 mins	Colour	1980	A somewhat dated technical description
—	An ATV Hamshack Micro-Computer	VK3AHJ	VK3AHJ	10 mins	Colour	1981	Describes now unavailable Micro-Computer kit
—	Getting Started in Amateur Micro-Computers	VK5IF	VK5KG	33 mins	Colour	1983	Demo of hard & software for amateur radio
	AMATEUR TELEVISION—TECHNICAL						
—	The Signal to Noise Story	VK3ATY	VK3AHJ	45 mins	Colour	1982	Superceded by "UHF Pre-amplifiers" (see below)
—	UHF Preamplifiers	VK3ATY	VK3AHJ	45 mins	Colour	1983	Explanation and demo. of low noise preamps
—	Getting Started in Amateur Television	VK5KTV	VK5KG	55 mins	Colour	1983	How to set up an ATV station
—	Testing ATV Transmitters	VK5KG	VK5KG	50 mins	Colour	1983	How to correctly measure ATV systems
*	High Definition TV Tutorial	Don Fink	WB2LLB	60 mins	B&W	1983	A look at what is to come in broadcast TV
*	ATV Hamfest, York, Pennsylvania, Sept. '83	Various	WB2LLB	6 hrs	Colour	1983	Various ATV technical lectures from USA
	AMATEUR TELEVISION—ACTIVITY						
—	ATV in Australia 1980/81—Made for British ATV CLUB		VK5KG	60 mins	Colour	1980	Clips from ATV Groups in VKs 2,3,4,5&7
—	ATV in United Kingdom 1978/81		G8CJS	30 mins	Colour	1981	Remake of their previous effort
*	CQ ATV DX International 1983		WB2LLB	60 mins	Colour	1983	ATV in USA and Europe
—	ATV in Victoria, 1984		VK3AHJ	54 mins	Colour	1984	Courtesy of "The Roadshow Gang"
	AMATEUR TELEVISION—GENERAL INTEREST						
—	Low Definition Television	Chris Long	VK5KG	25 mins	Colour	1982	Re-creation of TV as transmitted by Baird
*	Overseas TV Clips about ATV, etc.		WB2LLB	60 mins	Colour	1983	Broadcast TV clips from USA and Europe
—	Model Aero-Nautical Mobile ATV	VK5GO	VK5KG	6 mins	Colour	1983	ATV camera & Tx mounted in a model aeroplane
	MISCELLANEOUS						
—	An Auxiliary Battery Charger	VK5NX	VK5KG	30 mins	Colour	1981	Charging a second mobile battery
—	Lecture—Winning Foxhunts	VK5TV	VK5KG	45 mins	Colour	1981	How to do it from one who has!
—	Getting Started in Amateur Construction	VK5AIM	VK5KG	50 mins	Colour	1983	Mechanical hints for novice constructors
—	Comms. Consequences of Nuclear War	Dr. John Coulter	VK5ZBD	60 mins	Colour	1983	Why your gear may not survive even if you do!
—	The Far Eastern Broadcasting Company		VK5KG	60 mins	Colour	1984	How a Short Wave Broadcaster operates
—	The Australian "Over the Horizon Radar"		VK5KG	60 mins	Colour	1984	How the "Australian Woodpecker" works

*NOTE: © = Copyright; no copy service is available. * = Optically Converted to PAL from NTSC by WB2LLB, some flicker evident.*

WIA 75th ANNIVERSARY STICKERS

Suitable for use on QSL cards or envelopes.

Help publicise your Institute's Anniversary.

$1 for 20 stickers — post paid.

WIA VIDEO TAPE LIBRARY

John Ingham VK5KG, Federal Video Tape Co-Ordinator, now has some new equipment which will enable him to provide a much improved quality service, so all are urged to make use of this excellent facility.

Remember BETA format is available as well as VHS.

OVER TO YOU!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

WE USE THEM

Without wishing to take sides in the current debate regarding polarity standards for Clipsal 495 plugs and sockets, I would like to advise that these fittings are used by the West Australian State Emergency Service for the connection of transceivers in their vehicles. The standard used by this Authority is POSITIVE on the vertical pin of the 'T'.

E F Davies VK6ED
32 Dorset Street
Busselton, WA. 6280

FUSING ERROR

I am referring to the generally excellent article "Electrical Safety in the Amateur Shack" by Fred McConnell VK3BOU, published in the May issue of "Amateur Radio".

Unfortunately there is a potentially quite dangerous error in the reference to fusing, Par 6(b).

The SAA Wiring Rules explicitly prohibit fusing of the neutral. The wording of Rule 2.16.2, in my 1976 edition of AS 3000, reads: "No fuse or unlinked switch shall be inserted in the neutral conductor."

The reason for this provision is clear. If a neutral fuse should happen to blow before the active fuse the equipment concerned will remain active to earth while probably not working and appearing safe.

The only way in which the neutral may be opened by a protective device is the use of a linked switch or thermal device which opens both the neutral and active connection simultaneously.

Obviously, any circuit installed by a licensed electrician will never have a fused neutral.

With best 73

George Cranby VK3GI,
PO Box 22,
Woodend, Vic. 3442

FURTHER TO METRICS

Further to the footnote to P D Thomas' letter 'No Metrics', June AR, page 60, prompts me to write about the touchy subject.

To say that 'our grandchildren will know nothing else' is a bit wrong as I am sure any grandchildren involved in aviation engineering and any engineering units originating from the USA will be very much involved in Imperial measurements.

I doubt very much whether Imperial measurements will ever be displaced in manufacturing. Machinery lasts a long, long time, particularly in smaller workshops.

Many letters were written to the magazine 'Model Engineer', 15 March 1985 issue, also on this matter.

Yours faithfully,

R M Foreman VK2DKG,
42 Cambridge Avenue,
Vaucluse, NSW. 2030.
AR

METRICS-YES!

I totally disagree with VK5ZPT (AR June 1985 page 60) where he complains about the use of metric units in amateur radio measurements. The real issue is resistance to change, but I will first comment on his reference to The Metric Conversion Act.

I have not seen that Act, but I have a copy of the Australian Government Style Manual (whose authors must have knowledge of that Act), and I quote it in part at page 73:

All references to physical quantities and measurements in Commonwealth government publications should be in terms of the metric system as defined above. Only in special circumstances (for example, direct quotations from historical documents) should other units be used.

Non-government publications need not follow the above guidelines, and individuals should do what they must.

I was born in VU2, which adopted metrics and decimal coinage in 1957. I was only 5 then, so my education to university level in 1973 was based on metrics and decimal currency. For many years to this day, my elders expressed coinage in Annas, weight in pounds, and distance in miles. Our automobile was calibrated in miles, so I found it easier to estimate miles than kilometres, but felt comfortable with metrics for scholastic exercises. In 1973 I migrated to ZL, where I had a brief encounter with pre-metric days and had to learn all about pints, stones, pebbles, rocks etc. Then ZL and VK went metric, and the old timers have not yet stopped whingeing. Resistance to change is visible in the form of emotive letters to editors, absurd metric abbreviation eg MTRS, KPH, KLMS per LTR etc.

I get emotional when I see a British Dominion and supposedly English-speaking country (Australia) where North American influence (imitation) is stronger than is admitted. I cringe when I hear words like "dance", "chance" etc pronounced the American way. I have not discovered why some Australian publications use American spellings some of the time eg "Labor" and "Color" but not "Tire" (car tyre) or "Aluminum". The Americans do not use metrics, but we seem to like their pronunciation of "kilometre"! I am fussy about correct spelling (the British way), and my blood pressure goes up when editors and proof-readers cannot spell, and when newsreaders disregard grammar. People tell me that language is dynamic, and cannot be bound by rigid rules, whereas I prefer consistency. I too like to believe that I am "sensible and practical". Why do people complain that many to today's youth and even some teachers often cannot spell?

So dear Mr Thomas, many non-English-speaking nations have survived quite nicely without the advantage of Imperial units. Why not imitate them for a change? The Americans are slowly making compulsory the wearing of seat belts and motorcycle helmets, and one day they may change to metrics. The editor has already explained to you that metrics are easy to manipulate. Don't confuse our kids further, and perhaps direct your energies towards an Australian language that does not change with the tide. Then when you are on the air on six and a half feet, I'll come up on two metres, and we can have a good blue.

73,

Ash Nallawalla ZL4LM/VK3CIT
PO Box 539
Werribee, Vic. 3030

THANKS . . .

I would sincerely like to thank fellow amateurs who eventually managed, via the Australian Traffic and Travellers Nets, to contact me on a recent camping trip in VK2 and VK4, with urgent family information.

I am particularly indebted to Kevin Gill and VK3BBM for initiating the message, to VK3YH for drawing my attention to it being on the ATN, VK3VUZ for making vital telephone calls and to VK7RH and VK6BO for efficient handling of the matter on the nets.

Many thanks,

Hartmut Budde VK3DYD,
22 Clonmult Avenue,
Highett, Vic. 3190

SATISFY AN EGO!

I am sick and tired of reading and listening to people who can't get assistance for their own projects ie public exhibitions, rallys, exercises etc etc.

Surely these people usually put on a show to satisfy their own ego or their own group's ego. So why complain when nobody else wants to help!

The real secret is to find out how it will be accepted by the people they are going to ask to assist. If the response is zero, and they still want to go ahead, then cut it down to an event that they or their group can handle. This seems to me to be fairly logical. I know most of the replies will be *"If we don't put these shows on, who will know about amateur radio?"* My reply would be, *"If a person really wants to know about amateur radio he will find out, come hell or high water"*. When it comes to the recruitment of new amateurs the legalisation of CB was probably the biggest and best boost amateur radio has ever had and will ever get.

Yours sincerely,

John C Eastaugh VK5GY,
77 Grenfell Road,
Modbury Heights, SA 5092

MAKE MORE USE OF AR

I wish to thank the Victorian Division for the second prize award in the annual Kinnear trophy prizes and I congratulate the other prizewinners.

My thanks also to the editor of AR for his encouragement and acceptance of my contributions for publication.

The two main subjects I chose for my papers — amateur satellites and helical aerials, were new to me and I wanted to learn about them. I believe the best way to learn and understand a subject is to discuss it with others, experiment and then write about it.

The AR magazine is an excellent vehicle for papers from amateur radio experimenters and we should make more use of it for that purpose. Contributing a paper improves our own understanding of the art and helps others.

My thanks also to Rex VK3YN for triggering the interest in helicals and to Maurie VK5ZU for useful information about plotting satellite orbits and great circle tracks.

Yours sincerely

Lindsay Lawless VK3ANJ
Box 112,
Lakes Entrance, Vic. 3909

HISTORY!

Congratulations to the WIA on completing 75 years of valuable service to amateur radio in Australia.

Although I have only been a member since retiring from a working lifetime in telecommunications, I have had an interest in amateur radio since the mid 1920s and, like Edgar VK7RY (AR June), reached 75 years this year on 5 July.

Since becoming involved in telecommunications in 1928 I have been privileged to see, and be involved in, many of the advances and changing techniques in the art and it has been evident that amateurs have been in the forefront of change, bringing about many improvements — the use of HF, early DX working with the UK and USA, the use of VHF etc, etc, all encouraged by the WIA.

Many thanks WIA, for your co-ordination of amateur radio affairs, through the enthusiasm and hard work of members, and for the camaraderie of amateurs which the WIA has fostered so successfully.

73 and long life to the WIA.

John Weir, VK4KJW,
100 Wrigley Street,
Maroochydore, Qld. 4558

"ATV SHOP WINDOW"

Congratulations to the Western Suburbs Radio Club (Vic) for making such excellent use of one of amateur radio's best public relations and technical training machines . . . the 50cm ATV Repeater.

The recent televising of a lecture on Packet Radio,

and the announcement of further programming, indicates this is one club which is really looking to the future.

Melbourne's excellent 50cm ATV repeater, which is accessible on any commercial UHF television receiver (Ch 34), is without doubt one of our best shop windows. Unlike in-band ATV, one needs no special gear, everyone can view this full and comprehensive system on a regular lounge TV or VCR.

Technological change is fast, the Amateur Service must keep up. We must make full and efficient use of such excellent educational facilities as 50cm ATV . . . We have the technology — programme production and promotion is all that is required — *"Go to it Western Suburbs!"*

Best Wishes.

Tony Tregale VK3QQ,
38 Wattle Drive,
Watsonia Vic 3087

THANKS FOR AMATEUR RADIO DISPLAY

Thanks to the fine effort of Des VK3DES for the display in the Philatelic Sales Room of the Elizabeth Street Post Office during the sales of the First Day Cover celebrating the 75th Anniversary of amateur radio.

We are grateful also to Mr Ray Bolitho, manager of that section, for his kind assistance.

Yours faithfully,

C J Pope, VK3DPO,
23 Ayr Street,
Doncaster, Vic.

TECHNICAL CORRESPONDENCE

In the April issue of 'Amateur Radio' there was an article written by me dealing with Over-The-Horizon HF Radar. This article was written and published with the approval of the Director, Electronics Research Laboratory, Defence Research Centre, Salisbury, South Australia.

Since the publication of that article another magazine has attempted to provide information on the Jindalee OTHR system as well as present some associated theory.

I am concerned that a number of incorrect statements have been made in this later article and that these may be misleading to some readers. My comment on these mistakes are as follows:

1 Sections from the paper 'HF Skywave Radar — Current Progress' by Soden and Anderson have been used liberally throughout the article. Unfortunately in trying to rearrange this paper to suit the article the meanings of portions of the paper seem to have become either lost, distorted or stated incorrectly. eg the description of the effects of galactic noise.

2 The Doppler Resolution as shown in Table 1 of the article is incorrect by the loss of a decimal place. This is probably just a typesetter's error.

3 The photograph of the Hart's Range transmitting antennas is JUST THAT and NOT 'a small section of them' as suggested in the caption.

4 The 'Cable Connection Room' photo caption says 'Note earth straps'. What is pictured are not earth straps but rather multi-conductor plaited 'ribbon type' cables. I would hate to think that anybody would suggest that the engineers concerned would be so inept as to attempt to run earth braiding in the manner depicted.

One reason for the publication of my original article was to try and allay unnecessary fear which may exist within the Amateur Service that interference of a 'Woodpecker' type could be suffered as a result of operation of the Jindalee system.

The author of the article in the other magazine appears to be making an attempt to stir up concern when he intimates that after the radar leaves DSTO control and comes under RAAF control things may change as far as interference potential is concerned.

I would maintain that such statements smack of irresponsible journalism and that such an approach by the author should be soundly condemned. There is no reason at all to suppose that what he suggests is likely to occur. Both DSTO and the RAAF are parts of the Department of Defence.

Furthermore, the Department as a whole could be expected to consistently implement the policies laid down by the Federal Government. I can see no reason why this situation should change. To suggest otherwise would be considered to be alarmist and constitutes what I believe to be a most dishonest attempt to create sensationalism.

Naturally one would expect the situation to be totally different in the event of an outbreak of war of a general nature which included our country and we could expect that our amateur stations would be closed down as has happened in the past.

Finally, I would like to make it quite clear that this letter is written by me as both an amateur radio operator and an individual and private citizen and should not in any way be construed as an offical comment from an officer of the Commonwealth.

Ian J Hunt VK5QX
8 Dexter Drive,
Salisbury East, SA. 5109

ELECTRICAL SAFETY

I read, with interest, the article in AR, May 85, page 31 "Electrical Safety in the Amateur Shack" and believe that an important factor has been omitted from the article.

Firstly let me state that I am no expert in these matters, just a simple hobbyist, however this is what I understand.

The core balance earth leakage protection is OK when in the main switchboard or the sub-mains to the shack, providing the appliance being used is transformerless, eg electric irons, toasters, etc. but when the appliance has a transformer (as suggested in 6(c)) the CBEL provides protection only on the primary side of the system and NO PROTECTION AT ALL on the secondary side of the transformer — and it is in this area that many radio amateurs will be probing.

If the above very brief explanation is sufficient to outline the point I am trying to make and which I

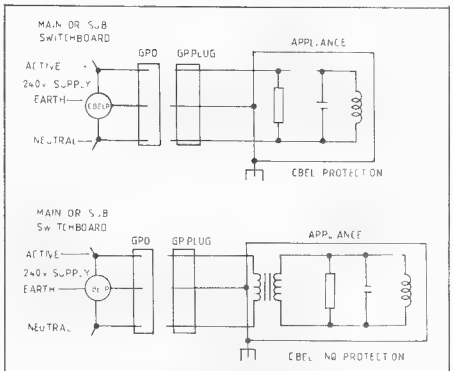


Figure 1

believe is important in the context of safety, then a clear warning to this effect should be included in any discription of CBEL.

73,

Colin Heath, VK5FX,
33 Braund Road,
Prospect, SA 5082

QSL BUREAU

Please note that I am handing over control of the VK5 QSL Bureau to John Gough VK5QD with effect from 1st June 1985.

The Bureau will continue to operate as it has done in the past and provide the usual service for WIA members at the monthly meetings.

The new address of the Bureau will be: *VK5 QSL Bureau, John Gough VK5QD, Post Office, Williamstown, S.A. 5351.*

I wish to thank my fellow amateurs for their help and co-operation during the last five years and assure them that, family matters permitting, I will still be available to ensure the smooth change over to the new QSL manager.

Ray Dobson VK5DI,
16 Howden Road,
Fulham, S.A. 5024

CORRECTION

The caption to the photograph at the foot of page 30 — July AR was incorrect.

The operator on duty at the Melbourne All Models Exhibition in 1955 was Graham Sutherland VK3ZAA. He was in contact with David Rankin VK3ZAQ (now VK3QV), when I took the photo.

73,

Alan Elliott VK3AL (ex VK3ZBE),
334 Dorcas Street,
South Melbourne, Vic. 3205.

The Southern Ontario Repeater Team, Inc. presents The Radio Society of Ontario/Canadian Radio Relay League Joint Annual Convention 27-29 September, 1985 Holiday Inn — City Centre.

The following programme outline gives a taste for what to expect at RSO/CRRL '85 in London, Ontario this September.

Giant Product Show, "Early Bird Eyeball" Wine & Cheese Party, Top Flight Speakers on every subject imaginable, Contests & Prizes, Partners' Progamme, Gala RSO/CRRL '85 Banquet, Entertainment, and Induction Ceremony into the Royal Order of the Wouff Hong.

Further information write to: Box 73, Hyde Park, Ont, N0M1Z0.

LOW-COST SYSTEM LETS MICROCOMPUTERS SEE

Image analysis is now available for use with any microcomputer which has high resolution graphics and an 8 bit parallel port at no more than the cost of the microcomputer itself, thanks to a vision system developed by a British manufacturer.

The basic system, called Microsight 1, uses a standard closed circuit television camera to capture images, passing them through a special interface and transferring the data as 8 bit digitised video signals. The microcomputer's RAM stores the captured image in monochrome and the software can be used for simple mapping and object recognition.

With addition of Microsight II, it is possible to input pictures of television quality and store them on disk. The further addition of Microscale software allows enhancement of picture detail measurement of defined areas of the picture, thus providing CAD type facilities.

The software is available for BBC, Apple, Commodore, Sirius and other popular microcomputers.

From New Technology in Britain

ADDENDUM to May AR . . .

Page 18, col 3, line 13 says "narrow band width . . ." should read "narrow beam widths".

Same col and page, 16 lines from the bottom "distance EC more . . ." should read "distance BC more".

Whenever a √ sign appears it applies to the whole line not just the first term.

Silent Keys

It is with deep regret we record the passing of —

MR ALFRED JOSEPH BARNES VK2CE
04.06.85
MR C FORDHAM VK5JQ
MR D GRIFFIN-WARWICKE L10002
MR R J SCOTT VK5RU
MR F J STEPHENS VK1FS
MR MILES UPTON VK3AMU
26.05.85
MR M VAN DYKE VK5NVQ

Obituaries

ALFRED JOSEPH BARNES VK2CE

Alf, formerly of Eastern Suburbs, for the last 30 years in Telopea, passed away at "Lottie Stewart Hospital" on Tuesday 4th June 1985.

Alf who was in his 77th year first became interested in amateur radio at the early age of 16. After getting his amateur licence he experimented on many projects, and one project that had many people thinking was one called "The Barnes Mystery Circuit".

Over the years Alf has aided and assisted a great number of people that are interested in amateur radio, both in getting their licence, and building projects. He was always there when someone wanted assistance. The hand of friendship was always extended to assist his fellow man.

Alf VK2CE, "Charlie Echo" — That call will be missed by a great number of people throughout the world, especially by his close mates and friends.

Alf is survived by his loving wife Kath and family, to whom we offer condolences.

Ron Jones VK2VND.
AR

PETER COHN VK1KPC

Monday the 6th of May marked a sad day for many amateurs, friends and associates of Peter Cohn VK1KPC, who passed away suddenly.

Peter will be missed by those who knew him at the Honeysuckle Creek Tracking Station, the computer section of the Government Printer's Office, the ANU School Computer Unit of the Research School of Physical Sciences, and by those who knew him as a hobbyist on the VHF bands, with WICEN, or in foxhunts on 2 metres.

But Peter was more than that. His friends and interests spanned the technical, the bushwalking groups, the mountaineers, and the performing arts.

A service in his memory in Canberra brought together a truly large gathering of those people whose ambassador Peter was. We knew of the diversity of his life, although few of us had any inkling of those that were his confreres in other fields. He promoted each of his dedications. He always spoke well of his fellows, and he joined us all with his sense of humour and his warm and gregarious nature.

What we did not realise, is that there was one more diversity to his life. It was a sadness which he did not share, for he held no brief in such matters.

Farewell young and dear friend.

George Brzostowski (VK1GB) and Dick Elliott (VK1ZAH) for the VK1 Division.
AR

GEOFFREY SAINT COOMBE VK5ML
5 April 1985

Radio was Geoffrey's hobby, and had been so, since his early teens.

Of his school friends with the same inclinations, he was the first to obtain his operators licence, his call sign was VK5ML.

During his time, he contacted most countries of the world, both on phone and Morse code, the Morse being a great love, and one in which he was particularly proficient.

He was not only an operator, but also a practical constructor, and one of his early home made transmitters is a heritage item preserved in the museum of the Wireless Institute of Australia.

Over the years, there developed a group with which he regularly spoke, but of late, could only listen.

Geoffrey will be sadly missed by his many friends.

In amateur radio language, Geoffrey is QRT, which simply means, he has closed his station down.

Basil Rogers VK3ABJ
AR

MILES UPTON VK3AMU

It is sad to report the passing of Miles, in Box Hill Hospital on 26th May 1985.

Miles moved to Queensland approximately seven years ago and held the call sign VK4AMU, but he returned to Melbourne three months prior to his death.

Miles is survived by his wife Jo, to whom we extend our deepest sympathy.

Ron Higginbotham VK3RN
AR

SILENT KEYS: LEUKAEMIA MORTALITY IN AMATEUR RADIO OPERATORS

Sir — In 1982 I reported increased mortality due to leukaemia in men whose death-certificate occupation suggested exposure to electrical and/or magnetic fields.[1] Similar findings have been reported by others.[2-4] An amateur radio operator (Andrew R Sabol W2EVE) wrote to me suggesting that I study mortality in members of the American Radio Relay League, a group of amateur radio operators exposed during their hobby to electromagnetic fields.

Recent deaths of members, with City and State, are reported in the "silent keys" section of QST, the league's monthly magazine. For 1971-83, there were 296 male deaths listed for Washington State and 1642 listed for California. Death certificates were obtained for 280 (95%) of the Washington State deaths and age, date, and cause of death information was obtained for 1411 (86%) of the California deaths. A proportionate mortality ratio (PMR) programme[5] was used to analyse the 1691 male deaths in the two States.

The table shows an increased PMR for the leukaemias, limited to myeloid (8th ICD 205) and unspecified (ICD 207) leukaemia. Lymphatic (ICD 204) and monocytic (ICD 206) leukaemias show no excess. This difference by cell type may have happened by chance, but it is unlikely to have resulted from any bias inherent in proportionate mortality analysis. Studies in the USA[2] and UK[3,4] also revealed a tendency toward a relative increase in the acute myelogenous type of leukaemia in electrical workers.

There is a strong association between employment in occupations with exposure to electromagnetic fields and membership in the American Radio Relay League. 97 of the 280 (35%) Washington State "silent key" death records listed occupations such as electronics technician, electrician and radio operator, while these occupations account for only 3% of male deaths in the Washington State death file.[6] The PMR due to leukaemia (ICD 204-207) in Washington State amateur radio operators was 264 (2 deaths observed, 0.76 expected) in those who worked in electrical-exposure occupations and 210 (3 deaths observed, 1.4 expected) in those who worked in all other occupations. Occupational exposure alone, therefore, probably does not explain the leukaemia excess in these men.

These findings offer some further support for the hypothesis that electromagnetic fields are carcinogenic.

ANALYSIS OF LEUKAEMIA DEATHS IN MALE MEMBERS OF THE AMERICAN RADIO RELAY LEAGUE RESIDENT IN WASHINGTON AND CALIFORNIA, 1971-83

Cause of death (ICD 8)	*Deaths* Observed	Expected*	PMR
All causes	1691	1691	100
All leukaemias (204-07)	24	12.6	191 ($p<0.01$)
Lymphatic (204)	3	3.9	77
Chronic (204.1)	3	2.1	143
Myeloid (205)	16	5.7	281 ($p<0.01$)
Acute (205.0)	11	3.8	289 ($p<0.01$)
Chronic (205 1)	4	1.5	267 ($p<0.05$)
Unspecified (205.9)	1	0.4	250
Monocytic (206)	0	0.4	0
Unspecified (207)	5	2.7	185

*Expected deaths for leukaemias generated using 1976 US age-specific white male death frequencies by detailed ICD number and a simple proportional model.

Supported in part by the National Institute of Occupational Safety and Health.
Epidemiology Section,
Division of Health,
Department of Social and Health Services,
Washington 98504, USA
SAMUEL MILHAM JR

1. *Milham S Jr. Mortality from leukemia in workers exposed to electrical and magnetic fields. N Engl J Med 1982; 307: 249.*
2. *Wright WE, Peters JM, Mack TM. Leukaemia in workers exposed to electrical and magnetic fields. Lancet 1982; ii: 1160-61.*
3. *McDowall ME. Leukaemia mortality in electrical workers in England and Wales. Lancet 1983; i; 246.*
4. *Coleman M, Bell J, Skeet R. Leukaemia incidence in electrical workers. Lancet 1983, i: 982-83.*
5. *Monson RR. Analysis of relative survival and proportionate mortality. Comput Biomed Res 1977; 7: 325-32.*
6. *Milham S Jr. Occupational mortality in Washington State, 1950-1979. DHHS, National Institute for Occupational Safety and Health (NIOSH), publication no. 83-116 (October, 1983)*

Contributed by Rob Nash VK2ZZX from the Lancet — 6 April 1985

GET ON THE BANDWAGON?

When Jakarta police swooped on a group of smugglers off-loading a plane from Singapore in the wee small hours recently, they received quite a shock. Instead of finding quantities of electronic goods, probably videos, they found a large number of walkie-talkies and amateur radios to feed the city's latest whim.

As most are unlicensed, it is difficult to tell how many operators there are in Indonesia but it is believed to be around one million. It is a status symbol to be able to operate with a proper call sign in Jakarta but many are too busy to sit for the ITU exams so they PAY for their licenses instead, whilst others just go without completely.

Amateur radio was granted by Government Regulations in 1967, however a boom started in 1981 with many using smuggled base stations and hand-helds. At first many were happy to use the CB channels, however these soon became overcrowded and any clear wavelengths are now used including amateur frequencies and sea and air navigation bands.

from information supplied by Neville Luey VK6ZNI. AR

NOW AVAILABLE FROM YOUR DIVISION . . .
1985 Foreign Call Books . . .
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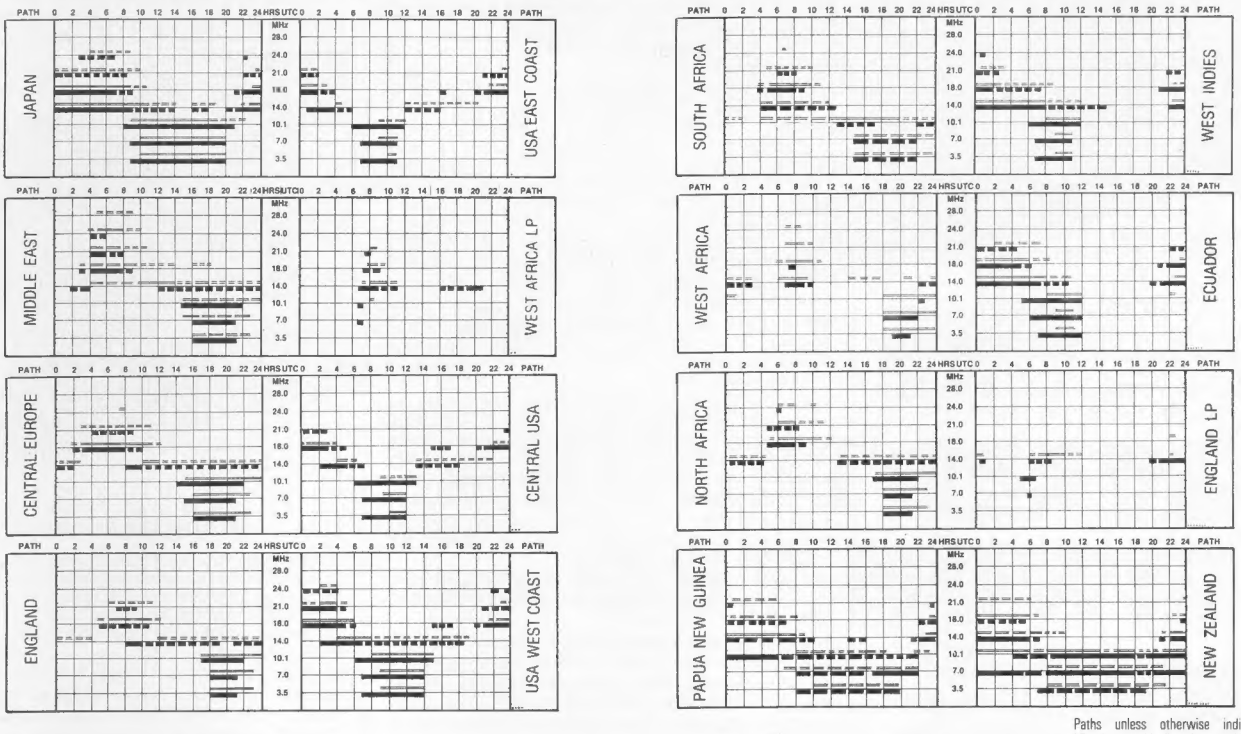
1985 USA Call Books . . .
$24.40 + post

IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic, 3060



LEGEND

From Western Australia (Perth)

From East Australia (Canberra)

Better than 50% of the month but not every day (continuous lines)

Less than 50% of the month (short broken lines)

Mixed Mode Dependent on angle of radiation (long broken lines)

Paths unless otherwise indicated (ie: LP = long path) all paths are short path.

Predictions reproduced courtesy of the Department of Science and Technology. Ionospheric Prediction Service, Sydney.

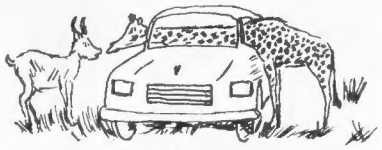
All times in UTC.

75th Nostalgia:

This equipment was set up as part of the Port Macquarie 'Carnival of Pines' in 1954. On the left is the station of Ted VK2AVG (now VK4YG). The transmitter is an ART13 with an American National HRO receiver. Under the bench are large power supplies needed to drive the equipment. To the right is the equipment of Peter VK2PA (the winner of the WIA's 75th CW Contest). This equipment consists of a Homecraft test kit CRO, an A2RTB and an STC AMR-300 communications receiver. Above the AMR-300 is a converted Bendix transmitter. Amateur Radios line the extreme right-hand side of the photo.

Photograph published in 'Oxtales', May 1985. Courtesy Peter Alexander VK2PA and R O'Connell VK2BFP.

NOTICE



ALL copy for inclusion in October 1985 Amateur Radio must arrive at Box 300, Caulfield South, Vic. 3162 no later than midday 21st August.

HAMADS

PLEASE NOTE: *If you are advertising items FOR SALE and WANTED please write each on separate sheets, including ALL details, eg Name, Address, on both. Please write copy for your Hamad as clearly as possible, preferably typed.*

- **Please insert STD code with phone numbers when you advertise.**
- Eight lines free to all WIA members. $9 per 10 words minimum for non-members.
- Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- Repeats may be charged at full rates.
- QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

Conditions for commercial advertising are as follows: The rate is $22.50 for four lines, plus $2 per line (or part thereof) minimum charge $22.50 pre-payable. Copy is required by the deadline as stated below indexes on page 1.

□ TRADE □

"FROM PASTURES GREEN TO THE SILVER SCREEN" by the late John W Gerard VK2ADN, is a 20th century autobiography comprising 156 episodes and 273 illustrations. The author's memories of remarkable events, exciting experiences and achievements were transferred to paper during a period of five years and make interesting reading for people of all ages. The price is $14.95 plus $2.50 postage and packing. Available from Mrs Marie Gerard, East Bonville Road, Bonville, NSW. 2441.

AMIDON FERROMAGNETIC CORES: Large range for all receiver and transmitter applications. For data and price list send 105 x 220 mm SASE to: RJ & US IMPORTS, Box 157, Mortdale, NSW. 2223. (No enquiries at office . . . 11 Macken Street, Oakley). Agencies at: Geoff Wood Electronics, Rozelle. NSW. Truscott Electronics, Croydon. VIC. Willis Trading Co., Perth. WA.

□ WANTED – NSW □

AMATEURS WANTED . . . VK2AYD is interested in conducting HF tests using 1200 BPS with other amateurs interested in Packet Radio. As a tentative start he will be on 14.103 (circa QRM) every Sunday at 0100 UTC. He is also prepared to try any other amateur band at any time, after working hours. VK2AYD, QTHR. Tel: (02) 452 5441.

BEAM . . . Small triband Mosley, TA33-Jnr or similar. Turning radius around 10-12'. In good order. Bert VK2OW, QTHR. Tel: (02) 76 5730.

CHEAP VIC-20. Not necessarily working. VK2ZQD. Tel: (046) 25 7746 AH.

PARABOLIC MICROWAVE DISHES. Any size up to 2m diameter. Buy, long or short term loan. Peter VK2JJJ. Tel: (02) 57 1426 AH.

YAESU FL-110. 100W amp for Yaesu FT-7 tcvr. Cress VK2AYB, QTHR. Tel: (02) 631 3186.

□ WANTED – VIC □

HY-QUAD HY-GAIN HQ-2. Graeme VK3BGH. Tel: (03) 735 7300 BH or (03) 870 4371 AH.

ROTATOR HAM M in working order or alternatively a defective unit with good upper casing. Required to replace unit with fractured upper casing. H G Tribe VK3AVH. Tel: (059) 88 8797.

WORKSHOP MANUAL for Comtronix FM-80 or any info relating to known faults in tx section. All costs re-imbursed. Any info welcome. Murray VK3CGC. Tel: (03) 306 5430.

□ WANTED – QLD □

CRYSTAL for 435 kHz. Any size or shape. Fred VK4RF, QTHR. Tel: (07) 200 7916.

EARLY MORSE KEYS for private collection. Please contact Fred L 40855, QTHR. Tel: (07) 396 3521.

SWAN EXTERNAL VFO. Model 508 in GC. Jim VK4AJG, QTHR. Tel: (075) 38 0270.

□ WANTED – WA □

MOBILE ANTENNA for 20 & 80m. VK6LT, QTHR. Tel: (09) 457 1080.

□ WANTED – TAS □

ASSEMBLY MANUAL for Chirnside 4 el HF Yagi. All costs reimbursed. Tom VK7NBE. Tel: (004) 24 5122 or 27 8318 AH.

□ FOR SALE – ACT □

DC-200 . . . 12V power supply for FT-200, as new. $80. Ten Tec 'Power Mite' tcvr. 12V 5W tx VFO, synchro rx. 40/20m, CW. Wt 1.5kg, + AC5 ATU & phones. $100. VK1BE, QTHR. Tel: (062) 81 3301.

FT-7 TCVR. 28.1-28.6 MHz xtal fitted. EC. Ideal novice rig. $350. FRG-7 rx. As new. $250. Richard VK1UE. Tel: (062) 58 1228 AH.

KENWOOD TS-820 with CW filter, mic, hbk. $500 ONO. Realistic PRO-2020 scanner $250 ONO. Consider exchange for Dual trace CRO or VHF multimode rig. Andrew VK1DA, QTHR: Tel: (062) 81 4209 AH or (062) 84 4620 BH.

YAESU FP-707 POWER SUPPLY. $120. Frank VK1ZL, QTHR. Tel: (062) 81 3956.

□ FOR SALE – NSW □

DECEASED ESTATE of VK2BHI. Yaesu FT-107 DMS, with scan mic. In immac cond. $850. Hidaka VS-80KR vert aerial with radial kit. $140. This unit is 4 yrs old but had little use. Jack Flynn VK2AY, QTHR.

DECEASED ESTATE of VK8NE. Kenwood TS-930S $1650. Kenwood RD-300 dummy load $80. Yaesu FC-707 ant coupler $160. Yaesu FV-707 DM digi VFO $195. Datong speech processor MDL ASP $175. Daiwa speech processor MDL RF-550 $90. Shure 444D mic $85. Kenwood MC-35S mic $20. Scalar mobile ant set MDL SC-00-R $100. ONO on above prices. VK2VVO, QTHR. Tel: (02) 630 2437.

FDK MULTI-QUARTZ 16 2m FM tcvr with mic & manual, xtals fitted for repeaters 1-8, + 40 & 50, 1/10W output. VGC. $170. Bob VK2ENU, QTHR. Tel: (046) 26 4776 AH or (02) 925 8109 BH.

FT-227R 2m FM 10W mobile tcvr $150. FT-620 6m SSB/AM/CW base tcvr $150. FT-7 HF SSB mobile tcvr + FL-110 100W amp. $400 the two. 25W FM 6m tcvr $40. All in GC. Tel: (069) 31 1490.

ICOM HP-1 HEADPHONES, new $30. Icom SM-6 desk mic. New $45. Icom AG-1 70cm masthead GaAsFET pre-amp. New $60. Texas Instr TI-55 professional advanced calc $40. VK2AS, QTHR. Tel: (02) 467 1784.

KENWOOD TR-2400 2m h/h complete with all manuals, spare nicad batt, fast & slow chargers & speaker mic. $260. Packet Radio software approach for TRS-80, complete with all manuals & built-up interface. $80. VK2HL. Tel: (02) 981 4762.

KENWOOD TR-7625 2m FM tcvr $300. TR-3200 70cm tcvr $100. AT-200 ant tuner $100. Yaesu FTDX-400 HF tcvr $200. KR-400 ant rotator $120. TET HB-34D 4el tri-band beam $300. Prices negotiable. All in VGC. Peter VK2EPJ. Tel: (02) 524 7387.

KENWOOD TS-120S, mic MC-10, new 20A power supply, ant tuner AT-120, mobile bracket, mobile ant mnt & 10 + 80 whips. $795 ONO. Cartons & handbooks. Yaesu 101ZD (WARC bands) with fan, 2 mics, ext VFO FV101DM, top gear, ctns & handbooks. $695 ONO. Tom VK2PDT, QTHR. Tel: (02) 807 3974.

KENWOOD TS-820S tcvr with 520S VFO. $650. PC. Kenwood TS-130S tcvr with 240V power supply & ext spkr $500. PC. Yaesu FRG-7700 rx with memory. $500. PC. VK2MW. Tel: 449 2439.

KENWOOD TS-830S in EC, very little use. Incl 12V inverter, orig manual & packing. Also workshop manual. $850. John VK2DFC, QTHR. Tel: (069) 62 5547 AH.

MARCONI SIG GEN TF-801D/1. 10-470 MHz. 1uV to 600mV. $150. VK2ZHM. Tel: (02) 663 0197 BH or (02) 406 5338 AH.

OSCAR 10 ORBITAL DATA – SASE for sample printout. FT-243 xtals, 3.720-5.995 MHz. SASE for list. Quantity of ex-military equipment components. Meters (55mm round mount) 180uA, 200uA & 1mA FSD. $5 ea. 100kHz xtals – octal $6.50, 7 pin $8.50. Polar variable caps 100pF, 50pF, 20pF – shaft length 8mm, dia 5mm $2 ea or 6 for $10. Stepped attenuators (10k) 0-40dB in 20 steps $4 ea. P&P $1. Ian VK2ZIO, QTHR. Tel: (02) 680 2112.

TOWER (CRANK-UP) 43' Purchaser to remove. $250. Bruce VK2YU, QTHR. Tel: (02) 869 1125 AH.

YAESU FL-2100B HF linear amp. Mechanically A1 cond but not operational. Offers invited from tech-minded amateurs who would like the challenge. Full details, Laurie VK2AQW, QTHR. Tel: (02) 969 2160.

YAESU FT-101 tcvr. 160/10m, WWV, the complete HF station. On air demonstration if required. $300, worth much more. VK2ALV, QTHR. Tel: (042) 29 6858 AH.

□ FOR SALE – VIC □

CHIBA CB 40 ch, audio test equipment, expertly assembled. All valves, CRO, oscillator output meter, dist volt meter. Decade box, ohm meter, no paper work. Will swap for 2m h/h or UHF Tiger. VK3DIO, QTHR.

ICOM 251A. 2m tcvr. 12 or 240V, built-in SWR meter, in top cond. $500. David VK3XPO, QTHR. Tel: (03) 848 6819.

ICOM STATION. IC-701 HF tcvr, IC-701PS power supply, IC-SM2 desk mic, IC-RM3 remote controller, IC-EX2 marker/ext terminal. All in PC. Plus spare SS finals, instr manual, orig cartons. $800 the lot. Rob VK3BVW. Tel: (03) 876 1665.

KENWOOD TS-520S tcvr in EC. New 6146 finals fitted, mic & op manual supplied. Good reliable radio for 160/10m. $400. Bert VK3ZZX. Tel: (052) 26 5033 BH or (052) 78 2374 AH.

KENWOOD TS-820S tcvr. Digi readout. CW filter, noise canc mic. As new cond. $500 ONO. Stan VK3AGT. Tel: (058) 58 2426.

TONO 7000 with cables, instr book & circuit. $325 ONO. John. Tel: (055) 23 1025.

SHACK CLEARANCE – Swiss Quad for 10 & 15m & inverted V for 80m, coax cable incl. 4 yrs old. Asking $225 ONO. VK3NAJ. Tel: (051) 74 6559.

TRAP VERTICAL, 5 band, Chirnside CE-5SS, 4.7m high, self-supporting. As new in orig carton with instr. $80. Kevin VK2ASM. Tel: (03) 874 2046.

VINTAGE MANTLE RADIOS, wooden cases, (need servicing). Tubes OK. AWA radiolette 1932 BC rx & STC C1938 BC-SW. $40 ea. VK3CD, QTHR. Tel: (03) 842 1374.

WERNER WULF 10/15 beam. Daiwa DR-7500X rotator with preset controller. 21ft plumbers pipe, welded guy rings, coax $230 or exchange good Eddystone comm rx. VK3VXY. Tel: (059) 74 2053.

YAESU FRG-7700 comm rx with FRT-7700 tuner and FRV-7700 VHF converter. All VGC $550. Yaesu FT-620 6m SSB/AM tcvr. 50-54 MHz. $260. Standard T-1200 2m H/H, new nicads & accs $190. Peter VK3PM. Tel: (050) 24 5814 or PO Box 30, Mildura, Vic. 3500.

□ FOR SALE – QLD □

HEATHKIT 'Q MULTIPLYER' with handbook. Was used in KWM 2 tcvr. $30. Fred VK4RF, QTHR. Tel: (07) 200 7916.

KENWOOD TS-120V 80-10m tcvr. PC, little use, no mods. $450. Scalar 5 band trap vert ant. 80-10m. PC, little use. $60. Steve. Tel: (07) 284 1127 after 6.00 p.m.

TOWER . . . 48' free standing. All steel, bolt together. $300. Fred L 40855, QTHR. Tel: (07) 396 3521.

YAESU FT-101E HF TCVR, AC-DC 100W output. Top cond. Fitted with 30m, new finals. $400. Joe VK4AGL, QTHR. Tel: (071) 41 2315.

YAESU FT-902D HF TCVR. WARC bands, hand mic, all modes, instr manual. Reasonable cond, $670 or best offer. Yaesu FV-101DM ext VFO. Instr manual, without patch leads, 1 yr old. $45. Steve Hyland. Tel: (077) 79 5388 from 8.00 to 9.00 a.m., Mon-Thurs.

□ FOR SALE – SA □

YAESU FT-707, FV-707, MMB-2 (mobile mount brack for FT-707 & FV-707), FT707 service man, spare IF & AF boards (complete), ATU-120. $750 ONO. Prefer not to separate. Siemens model 100 teleprinter, $80 ONO. PRC-10, $10. Trevor VK5ATB, QTHR. Tel: (085) 62 2886 AH.

□ FOR SALE – WA □

ICOM IC-740. VGC. 1.8-30MHz & manual $750 ONO. Icom IC-730 with SSB filter, from Heard Island Expedition 1983 incl mic, manual $700 ONO. 8el ATN log periodic ant. 13-30 MHz $400 ONO. 2 section Hill's winch-up mast 12m complete. Make an offer. Contact Emanuel VK6NEB for inspection. Tel: (09) 276 2207.

R-2000 COMM RX, 10kHz-30MHz. Near new cond. No faults. Complete with orig carton, manuals & necessary patch connectors for remote control of tape recorder. Will send anywhere in Australia at buyers cost by post. $450. VK6HT, 4 Quandong Place, North Pinjarra, WA. 6208.

□ FOR SALE – TAS □

YAESU FT-200 HF TCVR. Orig cartons with power supply $170. Paddle keyer with mem $90. Yaesu desk mic $25. Will trade. Tom VK7NBE. Tel: (004) 24 5122 BH or (044) 27 8318 AH.

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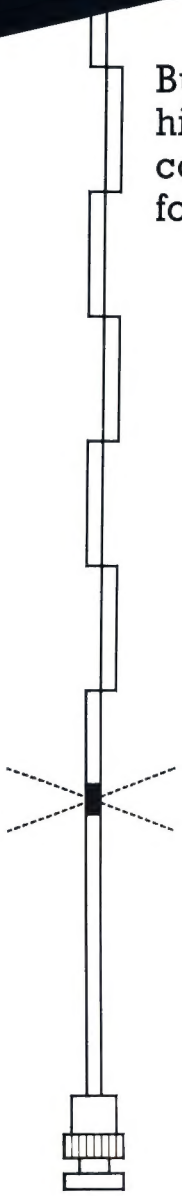
THE AUSTRALIAN ELECTRONICS Monthly

AUGUST ISSUE — OUT NOW!

Build a high gain collinear for 70 cm



Projects
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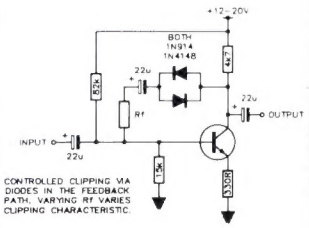
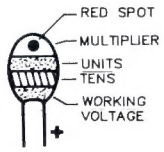
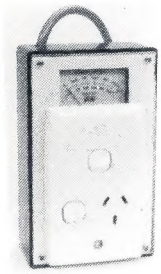
Limiters, clippers, compressors and other non-linear amplifiers.

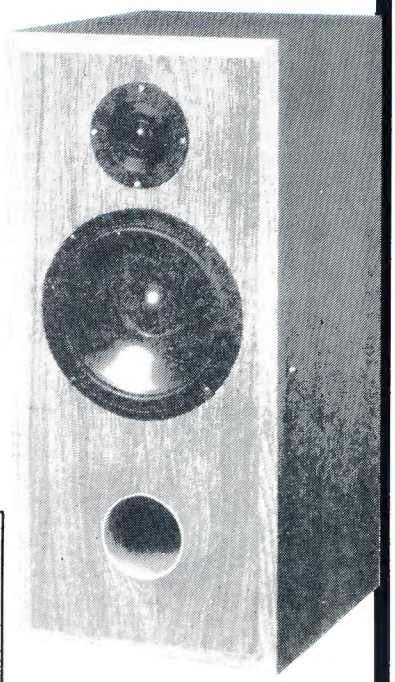


How to read the capacitor marking codes.



Twin-range mains power meter project.





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Announcing the new IC-735.

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It's beyond comparison.

The IC-735 has many features and options to provide you with hours of radio enjoyment. Because the Icom engineers dispensed with the normal power cage at the back, you will be able to fit the IC-735 into ... just about anywhere.

TUNING

Single control triple speed tuning allows frequency resolution to 10Hz. The processor provides 3 scanning modes which includes mode scan, memory scan and program scan. The memory channel (there are 12), operating frequency, VFO, mode and RX/TX are all displayed on the illuminated LCD.

RECEIVING

Icom's direct fed mixer helps to provide outstanding performance in receive, for example Image response of 80dB. Input attenuation, pre-amp and RF gain control combine with notch filtering and pass band tuning to provide the most comprehensive tuning system. Naturally Icom have included the general coverage facility.

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